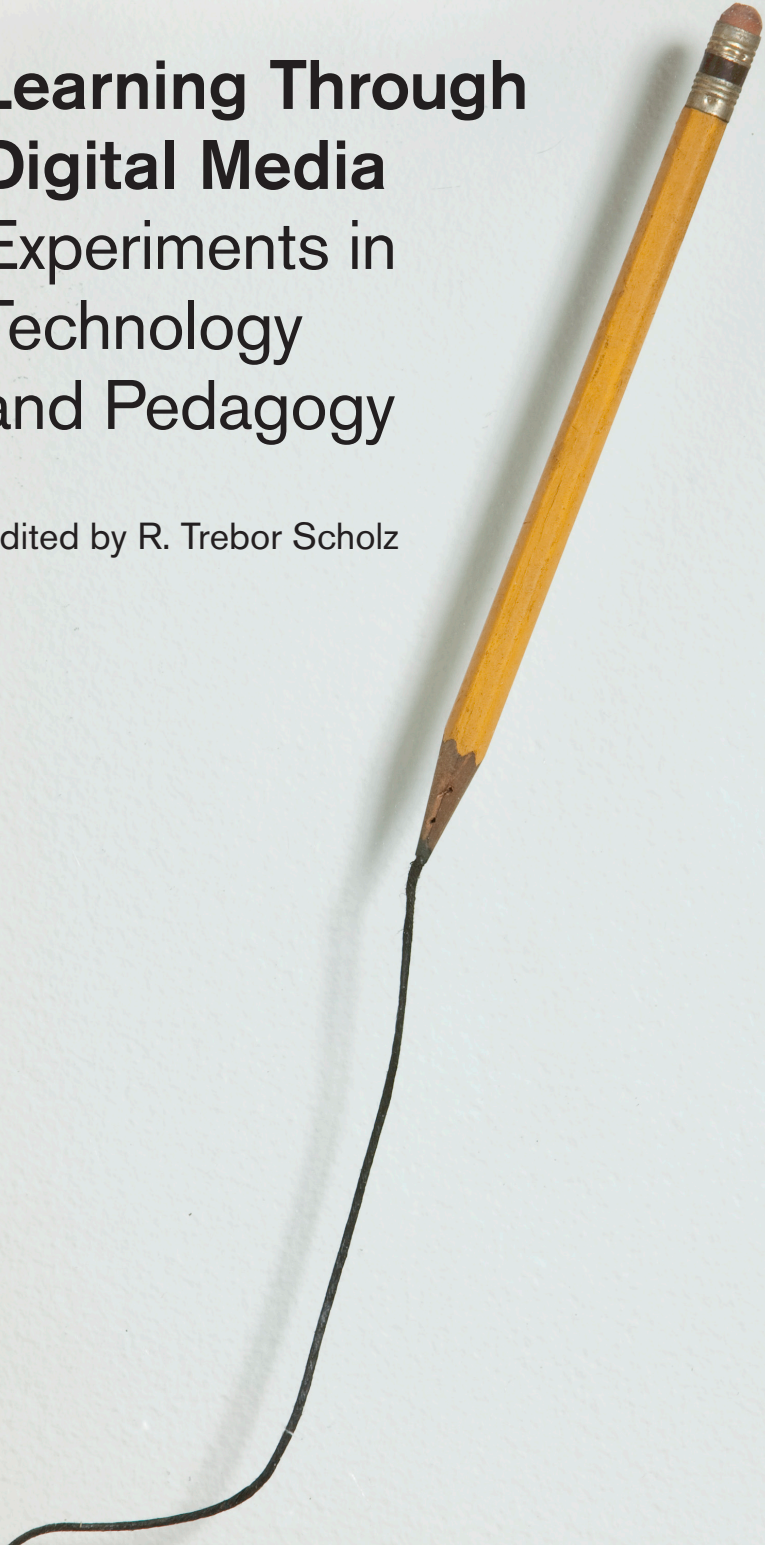
Learning Through Digital Media

Experiments in Technology and Pedagogy

Edited by R. Trebor Scholz



The Politics of Digital Culture Series

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The Institute for Distributed Creativity (iDC)

The Institute for Distributed Creativity publishes materials related to The New School's biennial conference series *The Politics of Digital Culture,* providing a space for connections among the arts, design, and the social sciences.

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Cover Image: Luis Camnitzer (Uruguayan, born 1937), *The Instrument and Its Work,* 1976. Wood, glass, and metal, 30 x 25.5 x 5 cm, Collection Reto Ehrbar, Zurich, Photo by David Allison, © 2010 Luis Camnitzer.

About This Publication

This publication is the product of a collaboration that started in the fall of 2010 when a total of eighty New School faculty, librarians, students, and staff came together to think about teaching and learning with digital media. These conversations, leading up to the *MobilityShifts* Summit, inspired this collection of essays, which was rigorously peer-reviewed.

The Open Peer Review process took place on MediaCommons,[1] an all-electronic scholarly publishing network focused on the field of Media Studies developed in partnership with the Institute for the Future of the Book and the NYU Libraries. We received 155 comments by dozens of reviewers. The authors started the review process by reflecting on each other's texts, followed by invited scholars, and finally, an intensive social media campaign helped to solicit commentary from the public at large.

The New School is a leading institution when it comes to incorporating cross-disciplinary digital learning into the curriculum. It offered its first Media Studies degree program already in 1975. *Learning Through Digital Media* reaffirms this commitment to interdisciplinary innovation.

[1] See ‹http://mediacommons.futureofthebook.org/mcpress›.

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Introduction
Learning Through Digital Media

R. Trebor Scholz

The simple yet far-reaching ambition of this collection is to discover how to use digital media for learning on campus and off. It offers a rich selection of methodologies, social practices, and hands-on assignments by leading educators who acknowledge the opportunities created by the confluence of mobile technologies, the World Wide Web, film, video games, TV, comics, and software while also acknowledging recurring challenges.

In their work, academics build on the research of their peers, but when it comes to pedagogy, this is not always so. This selection of essays hopes to contribute to changing that by exploring how we learn through digital media; the authors ask how both ready-at-hand proprietary platforms and open-source tools can be used to create situations in which all learners actively engage each other and the teacher to become more proficient, think in more complex ways, gain better judgment, become more principled and curious, and lead distinctive and productive lives. Today, learning is at least as much about access to other people as it is about access to information. Such participatory learning cannot be exclusively about "career readiness" or vocational training but must also assist learners to reflect on social justice, love, history and ethics.

Changing Role Models

Where, when, how, and even what we are learning is changing. Teachers need to consider how to engage learners with content by connecting to their current interests as well as their technological habits and dependencies. Learning with digital media isn't solely about using this or that software package or cloud computing service. The altered roles of the teacher and the student substantially change teaching itself. Learning with digital media isn't about giving our well-worn teaching practices a hip appearance; it is, more fundamentally, about exploring radically new approaches to instruction. The future of learning will not be determined by tools but by the re-organization of power relationships and institutional protocols. Digital media, however, can play a positive role in this process of transformation.

For professor Brad Mehlenbacher, digital learning undergirds constructivist visions of radical change in how teachers approach learners (237), challenging traditional power relationships and emphasizing student-centered learning. We can try to imagine how cultural anthropologist Margaret Mead, artist and Bauhaus professor Paul Klee, or Russian philosopher Mikhail Bakhtin would use digital media to take their students on intellectual adventures. Today, such innovative approaches to learning also matter to game designer and educator Katie Salen who, in *Re-Imagining Learning in the 21st Century,* described good contemporary teachers as learning experts, mentors, motivators, technology integrators, and diagnosticians.

Angry Birds, YouTube, and the Importance of Deutero Learning

In *Steps to an Ecology of Mind*, American anthropologist Gregory Bateson formulates his concept of Deutero-Learning, meaning "learning to learn," the extraction of implicit rules in learning (159–176). While learning is an activity that is taking place all around the clock and in many different environments, it doesn't automatically come about when the iPad, the Angry Birds Game, FormSpring, or Twitter are introduced. Learning must not be simply about consumer choices.

Today, learning to learn through digital media implies that it simply isn't enough to have access to Wikipedia or YouTube or syllabi by MIT faculty and others; the urgent question becomes how we meaningfully and effectively learn with these tools, repositories, platforms and all open educational materials. How do we ignite student engagement, political and creative imagination, intellectual quest, and the desire for lifelong learning?

Attitudes for the 21st Century: Beyond Remixed Promises and Cycles of Obsolescence

From the telegraph to the radio and television, exaggerated promises and unyielding skepticism can be seen at the core of the historical cycles that accompany the adaptation of technology to education. The most burning problem for digital learning is technological obsolescence and the attendant need to learn and readapt to new technological milieus and cycles of transformation. Openness, flexibility, playfulness, persistence, and the ability to work well with others on-the-fly are at the heart of an attitude that allows learners to cope with the unrelenting velocity of technological change in the 21st century. Digital media fluency also requires an understanding of the moment when technological interfaces hinder learning and become distracting. Competent learners know when and how to block social online services and power down their cell phones. They understand that open access to the Internet and web-based tools is not enough.

Tools will never outshine a brilliant teacher, but over the past fifteen years many tools, services, and platforms have become easier to adapt for learning purposes, to help command and hold the attention of learners for whom email is no more than an easy way to talk to "the man." This includes a repertoire of social networking services like BuddyPress, Diaspora, Crabgrass, or Facebook, electronics prototyping platforms like Arduino, media sharing sites like Vimeo or YouTube, social bookmarking services like Diigo and Delicious, research tools like Zotero, Citeulike, or Mendeley, as well as microblogging services like Identi.ca or Tumblr, and plat-forms like 4Chan and Omeka. Equally part of the contemporary media mosaic are streaming services like Ustream, and organizational helpers like Doodle, TextExpander, Anti-Social, or Google Moderator. We cannot ignore that these are some of the media environments that play a leading role for young middle-class learners in rich countries. They are like dance moves that teachers can learn to choreograph.

It goes without saying that this collection cannot offer a complete palette; it is a considered selection. Some of the tools explored here will be obsolete in a few years or even months but the methodologies, attitudes, and social practices of experimentation will remain valuable.

In the face of quickly proliferating techno-educational services, many teachers (and students) don't feel they are entirely with-the-times. Today, however, we are all laggards. Some teachers wonder if they can simply hunker down and learn a handful of instructional software applications on a rainy weekend and then be done for the next five years. Regrettably, that will not work. Technological skills have never had a shorter shelf life. Learning to learn with digital media is about conducting continual small experiments. MIT professor and director of the Lifelong Kindergarten project, Mitchel Resnick, argued that "the point isn't to provide a few classes to teach a few skills; the goal is for participants to learn to express themselves fluently with new technology" (Herr-Stephenson et al. 25). Empowering today's learners, and undergraduates in particular, should not be about "just-in-time-knowledge"[1] and hyper-specialized competencies but about the ability to learn.

No doubt, digital media place both teachers and students outside of their comfort zone. While numerous contributors to this publication argued that they experienced this discomfort as productive, many felt that preparatory time, the ability to integrate and learn a new platform, and the sheer number of choices was overwhelming. Other instructors feel discouraged by bad experiences. We found that when teachers imposed the tools-du-jour on near-at-hand students, their experiments were likely to fail if there wasn't enough consideration for pedagogy.

Learning Everywhere

Digital learning not only takes place online or in the university classroom but is also situated in high schools, museums, after school programs, home schoolers' living rooms, public libraries, and peer-to-peer universities. Learners do not learn exclusively in the university where "master-teachers" impart their insights under the tree of knowledge. In 1971, Austrian philosopher Ivan Illich even claimed that "we have all learned most of what we know outside school" (Illich 20) and in 2010 American literacy scholar and professor Jim Gee argued that "Americans and residents of any developing country need to think of education as not just schools by the system of 24-7 learning." Along the same lines, in her study "Hanging Out, Messing Around, and Geeking Out," American scholar Mizuko Ito emphasized that learning is taking place in informal learning networks through "friendship-driven and interest-based participation" and that such networks stretch beyond institutional boundaries. Like Illich, Gee, and Ito, we think that learning situations are located both inside and outside of institutions.

In 1915, one of the founders of The New School, John Dewey, emphasized that education does not only take place in schools and that it ought to prepare learners

for democratic citizenship. Institutional learning should not foster individualism but rather emphasize community development, which is the basis for the improvement of society. Informal social networks are crucial in that process, connecting students with their peers and with teachers. For Freire, pedagogy was deeply connected to social change; it "was a project and provocation that challenged students to critically engage with the world so they could act on it" (Giroux). Digital media can help learners to become more active participants in public life and, moreover, can facilitate subversive, radical pedagogy and civic engagement. This also means that we need to stop ignoring the ways in which we teach behind closed doors and radically focus on media pedagogy as an urgent topic on which we should work together.

[1] By just-in-time knowledge, we are referring to Nintendo's university in Washington State that delivers students with "just-in-time-knowledge" while outright ignoring the humanities. All that is needed from the student/prospective worker is a particular set of skills necessary for an upcoming project.

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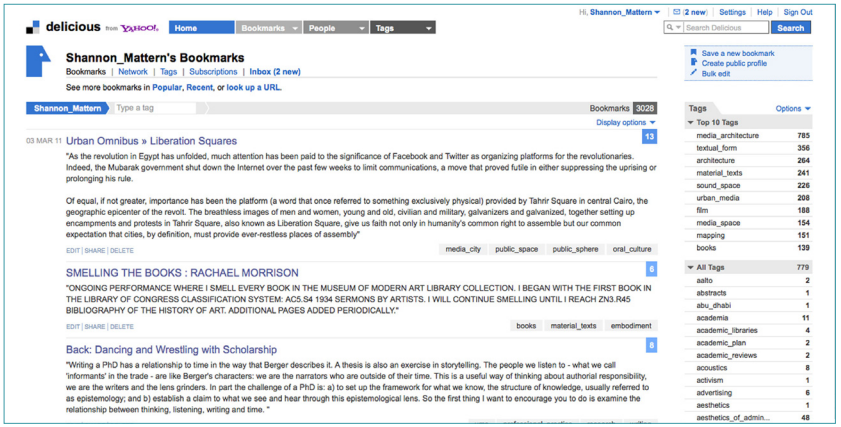
Delicious
Renovating the Mnemonic Architectures of Bookmarking

Shannon Mattern

In the days before its death knell had been rung (about which more later), I paused to reflect on the role that Delicious, the social bookmarking service, had played in my research and teaching over the past several years. Rather than being struck with inspiration, however, I felt a sudden and overwhelming urge to organize my sock drawer. That finished, I turned my attention to a pile of articles that I had ripped from print journals and needed to digitally archive. Only then, when my physical surroundings appeared to be in some semblance of order, could I face the Delicious mess online.

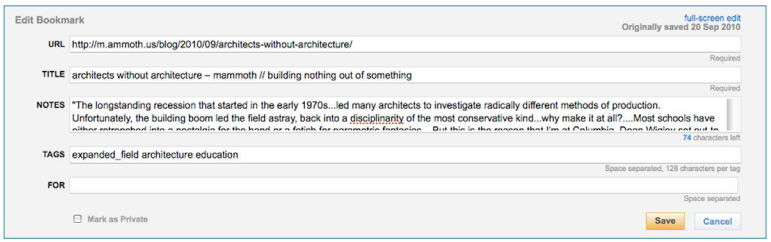
As of early Fall 2010, I had over 2700 bookmarks and nearly 800 tags in Delicious. Some of my tags, including "abu_dhabi" and "focus_groups," had only one occurrence. Others, like "dava_visualization," "uban_history," and "learnin" (sic, sic and sic) were poorly represented, for obvious reasons. "Design_anarchy" (where'd that come from?) also made a one-time appearance. There were 60 or so sites tagged with "libraries," and another 40-some tagged with its singular sibling, "library." I had used my top-ranked tag, "media_architecture," which reflects my primary area of research, nearly 750 times. "Textual_form," my own way of saying "the form and materiality of mediated texts," came in second, with 322 occurrences. There were some clear front-runners, but it was that "long tail" that bothered me: the hundreds of tags that had only a single

occurrence. When would those tags ever serve their intended purpose: helping me re-locate that website with fantastic information on "Paul_Otlet" or "new_institutionalism"?



The thought of writing publicly about my mostly private, idiosyncratic bookmarking habits made me feel a bit like I had unexpected visitors at the door and I hadn't vacuumed in weeks. Thus my recent bookmark redd-up, which helped me whittle down my tag count to a still excessive, but nevertheless manageable, 723.

Delicious social bookmarking is indeed palatably easy to manage, but it can get sloppy if you don't clean up the little spills—the misspellings, the singular/plural duplications, the so-specific-that-you'll-never-use-them-again tags—every now and then. The service allows you to manage your bookmarks from any web-connected device: your home computer, your work computer, your Smartphone, your iPad, whatever. If I bookmark a site on my laptop (via a convenient Firefox add-on), I can access it from my iPhone via either the Delicious Bookmarks or Yummy app.



Delicious began in 2003 as del.icio.us, whose name was a "domain hack," a semantic and syntactical play on the .us registry launched the previous year. But the site concept predated the cornball name. Founder Joshua Schachter had developed Memepool, a collection of links, in the late 90s. He then created the Muxway application to attach tags to those links and help *organize* his collection. Thus "tagging," which Clay Shirky (2005) defines as "a cooperative infrastructure answer to classification," was born. Muxway was then relaunched as del.icio.us, which, in 2005, attracted investments from Union Square Ventures, Amazon, Marc Andreessen of Netscape, and Tim O'Reilly, among others. Later that year, de.licio.us was acquired by Yahoo!, and when the site was redesigned in 2008, it lost its cheeky punctuation and became the more seasoned Delicious.

In-between the Yahoo acquisition and the rebranding, I tagged my first de.licio.us bookmark. For the previous near-decade I had tried out a variety of bookmark management strategies. I started off with one huge, messy miscellaneous bookmarks folder, which contained everything from birthday gift ideas to dissertation resources, before I eventually started developing a topical folder taxonomy. Each of the classes I taught had its own bookmark folder, and each semester, when I prepared for a new course, I retrieved links from the relevant folders and pasted them into my syllabi and course websites. There was a lot of duplicated effort in this work. I found multiple bookmarks saved repeatedly to multiple folders simply because the sites they referenced bore some relevance to several classes or topics. My bookmark folders were full of redundancies and dead links, and because all this material was buried so deep in hard-to-access sub-subfolders of my web browser, I simply never got around to cleaning up the mess.

I don't remember how I discovered Delicious. But I do remember that I had heard about it long before I adopted it for my own use; I think it was the name that kept me from taking it seriously. I eventually realized that Delicious could help to eliminate the frequent ontological crises that accompanied my bookmark filing decisions: "Do I file it in the 'libraries' folder, or the 'archives' folder, or *both*?" Delicious also promised to cut much of my redundant web-link-related class preparation efforts, and would enable me to share new, customized lists of resources with students in ways that I hadn't been able to before (I'll say more about this in a bit). Shortly after I posted my first-ever link to Delicious (a link to the blog "A Daily Dose of Architecture"), I started the long, gradual process of transforming all my old, filed-away *private* bookmarks into tagged *social* bookmarks.

There are still hundreds of bookmarks in my Firefox folders that I never moved over to Delicious. But I don't miss them. I have a new, ongoing housekeeping task to keep me busy: I'm adding "notes" to all of my new and existing bookmarks. It must have been sometime in the summer of 2009 when I realized that my current cataloging system was insufficient; I had been making sure each bookmark had a title and several tags, but after building up my collection for two years I realized that, on first glance, there is only so much information one can glean from a title like "Container List," tagged with "design," "archives," and "research." I'd have to open up the bookmarked page to figure out what was inside. I recalled archaeologist Denise Schmandt-Besserat's explanation of how the Sumerians would enclose clay tokens—the basis of their accounting system—in clay envelopes and impress the token into the envelope before sealing it, so that, in the future, when they pulled that envelope off the shelf, they would know what was inside without having to break it open. I wanted my bookmark labels to work like that: I wanted to know what was inside without having to open the page. I resolved to make sure all of my titles were unique and descriptive and my tag lists were thorough but not excessive, and I decided to fill in the "notes" field *not* with a slapdash description, but with a fairly serious abstract comprised of condensed quotations from the bookmarked page. This meant that I wouldn't be casually filing away pages for future reference (if I didn't read it then, I probably never *would*!); instead, I'd be spending a few minutes with each page, identifying its main points, figuring out which ideas are most relevant to my own work—which thoughts I'd want to "impress on the envelope"—and giving it a respectable, 1000-character label. Judging from my bookmark history, it seems that by early 2010 I'd bought into the new system.

In his appendix to *The Sociological Imagination*, C. Wright Mills promotes his own system of professional practices, which cultivate what he calls "intellectual craftsmanship." He addresses in detail the importance and utility of creating and maintaining a "file" organized into a master list of projects, into which one can then sort notes, references, abstracts, outlines, etc. Of course Mills probably had in mind a massive accordion file or a filing cabinet, which would require that the researcher choose the single most appropriate folder into which she would file away a particular clipping or Call For Papers. Today, thanks to tagging, students can file any piece of data—lecture recordings, class notes, photographed archival material, citations—into multiple thematic or topical areas. And with personal database software like DevonThink and Yojimbo, and note-organization software like Evernote, they can dump all of their intellectual and creative material into one program. Despite the fact that there are these multi-purpose programs that seem to absorb Delicious's functionality into their super-powered, all-in-one, Swiss Army knife model of information management, I encourage students to consider the unique "intellectual architectures" of the different types of material they're handling, and the distinctive ways their brains, and their software, process these various formats. Does an all-in-one tool help you think critically about the material you're filing away?

On all of my course websites, I make available the subset of specific course-tagged resources in my Delicious account. If students contact me to ask specifically about, say, how to take notes in an archive, I send them my "archive" + "methodology" links. If others ask for resources on architectural photography, I can send them my list dedicated to that specific topic. I acknowledge in class that Delicious has worked well for *me* in collecting and organizing *my* web resources, but I clarify that I'm not prescribing it for everyone. The platform has particular virtues: it is easy to use, it is cross-platform, and it is social. Granted, I'm not the most social user of social media. But my commitment to "public scholarship" and my desire to model for my students an open and accountable approach to research have led me to post all my publications and course material to my website, maintain an open bibliography on Zotero, and, as you know by now, share my bookmarks via Delicious. I've noticed a few people whose tagging habits are uncannily similar to my own; I've added these folks to my "network" so I can follow their bookmarking. Although I have the potential to add some of my favorite bookmarkers' Delicious links to my RSS reader, I haven't (I can barely manage my RSS feeds as it is!); I am glad, however, that some of those intriguing bookmarkers, like Dan Hill of *City of Sound,* also post their Delicious links to their blogs. If I were more social, I could send my social bookmarks to people and edit my Delicious networks into "network bundles." But I don't feel the need to do so. I'm perfectly happy occasionally peeking over the shoulders of a few interesting bookmarkers and otherwise minding my own business.

I could see these networking functions being useful for student group projects, though. Students could create class and group networks to which each member could contribute links, and if they're concerned about privacy, they could change the privacy settings so that they're visible only to themselves. I've never *required* students to make use of social bookmarking platforms, but I'm convinced that *encouraging* them to do so can cultivate information

literacy and some valuable research habits. And like most habits, these don't develop overnight. It seems to me that Delicious' value—indeed, the potential pedagogical value of much social learning software—emerges over time, through trial and error, through adaptive use. This is partly why several colleagues who've required bookmarking in their courses have found that these assignments don't necessarily cultivate eager and diligent bookmarkers within the span of a semester. Yet these same colleagues often find that those same students who bookmarked out of obligation—some of whom did so resentfully—in class, are later using the tool voluntarily for their personal projects. Sometimes a tool's utility most clearly evinces itself when its use is no longer mandated and subject to scrutiny.

And if they stick with it, these students will likely discover, as I did, that a simple bookmark title and tags eventually prove insufficient; to optimize the use of the Delicious "homepage" list as a "finding aid," *à la* Schmandt-Besserat's envelope label, one needs to make use of the "notes" field, too. Filling in the "notes" reinforces the value of abstracting one's resources as one goes along, to support recall and aid in later recovery. Tagging, too, is an exercise that can gradually reveal one's intellectual development. As Mills acknowledged in regard to his own "file," its use "encourages expansion of the categories which you use in your thinking. And the way in which these categories change, some being dropped and others being added, is an index of your intellectual progress and breadth" (199). You might eventually realize, for instance, that your "media_art" tag is too broad, and that you need to dissect it into "media_installation_art," "net_art," "locative_media_art," and so on. Or you might find that all those one-off tags in the "long tail" serve no purpose and need to be purged. Or that your "ebook" and "digital_reader" tags should be merged into a single category. In these social systems, Shirky says, "filtering is done post hoc."

Mills suggests that such conceptual reevaluation has the potential to "stimulat[e] the . . . imagination": "On the most concrete level, the re-arranging of the file," or one's tags, "is one way to invite imagination. You simply dump out the heretofore disconnected folders, mixing up their contents, and then re-sort them" (212). Furthermore, "[a]n attitude of playfulness toward the phrases and words with which various issues are defined often loosens up the imagination. Look up synonyms for each of your key terms . . . in order to know the full range of their connotations. This simple habit will prod you to elaborate the terms of the problem and hence to define them . . . more precisely." Even the act of tag housekeeping, which I just attempted, puts you into close contact with your tags and forces you to reflect on their utility. Just recently, after who knows how many years of overlooking it, I discovered the "rename tags" function, which allows me change all 40+ of my "library" tags to "libraries" with a few keystrokes. Even this simple act of *handling* the tags made me question their value as intellectual structures.

Although there is tremendous social potential for Delicious, I find its *publicity* (i.e., the fact that it allows bookmarkers to make their lists publicly accessible) to be more compelling than its *sociality*. Schachter noted that Delicious' value isn't determined by its sociality; "network externalities"—value that's dependent on the number of people using a system—won't make or break the system. "Ideally, the system should be useful for number one," he said (quoted in Surowiecki). Its social utility is second priority. I'd argue that we step back from overblown proclamations regarding the "folksonomy's" potential to generate "collective intelligence" that will overturn traditional ontological classifications, a claim I've read in many a graduate-student paper (Shirky, Vander Wal), and instead consider what Delicious and similar platforms can teach "number one." As Henry Jenkins warns, we cannot assume that young people, even undergraduate and graduate students, "are actively reflecting on their media experiences and can thus articulate what they learn from their participation" (12). Referencing Squire's studies, he notes that students who played the empire-building computer game *Civilization III* in a history class "lacked a vocabulary to critique how the game itself constructed history, and they had difficulty imagining how other games might represent the same historical processes in different terms;" they "were not yet learning how to read games as texts, constructed with their own aesthetic norms, genre conventions, ideological biases, and codes of representation" (15). Delicious is commonly regarded as an *organizer* of texts, not a coded, ideological text itself. We should be promoting both individual and, when used in group projects, *collective* critical reflection on how, or whether, Delicious's contributors constitute a "folk" committed to the creation of a social "taxonomy." We should encourage students to consider how Delicious organizes information, how it sources materials, how its design affects its functionality and informs the types of content fed into it, what codes structure its layout and performance, and how other systems—CiteULike,[1] Diigo,[2] etc.—might perform the same functions differently (see Kahle).

This comparison of similar platforms is much more than an intellectual exercise; it is a necessary strategy for self- (and data-) preservation. On the

very day I received a copyedited version of this essay, Yahoo! announced that that it was "sunset"-ing (i.e., phasing out) Delicious, along with AltaVista, Yahoo! Buzz, and some other properties. Those who had invested years and thousands of bookmarks in Delicious scrambled to identify appropriate alternatives. I searched frantically for a platform that would allow me to import my bookmarks and tags, as well as those all-important notes. After a period of acute despair over the fate of not only my own and my colleagues' bookmarks, but also *this* essay, I came to realize that exporting bookmarks to a new platform would be relatively painless. All my data would survive; I would simply have to take some time to acclimate myself to a new system. I recalled Mills: this was another of those moments of rearrangement (granted, involuntary) that had the potential to "loosen up the imagination." It was an opportunity for us Delicious users to reconsider the categories and architectures of our "files," and to use that process to gain insight into our own "intellectual progress and growth." Would we search for a replacement social bookmarking service, or would we try integrating our bookmarks into a more robust program like Diigo, which would allow us to integrate citation management with *annotation,* and to make both activities social?

Adaptability is an inherent and integral part of digital learning—indeed, *all* learning. It requires that we accept the inevitability of change and, yes, even obsolescence; that we acknowledge the potential capriciousness of commercial platforms and start-ups; and that we regard these experiences not as obstacles or dead-ends to be avoided, but as inevitable components of any learning process that we need not work around, but work *with*. Whether Delicious perishes or survives, as-is or in renovated form, the consideration of alternatives allows us identify what makes Delicious *Delicious,* and how its intellectual architectures scaffold and structure the way we think.

[1] See ‹http://www.citeulike.org/›.

[2] See ‹http://www.diigo.com/›.

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Follow, Heart, Reblog, Crush
Teaching Writing with Tumblr

Adriana Valdez Young

By taking a quick glance at my member profile, you might guess that Tumblr is an online dating site, but although Tumblr frames site activity in the language of admiration and courtship, it is, in fact, a fantastically simple microblogging platform that is extremely adaptable for a spectrum of personal and professional uses. Tumblr members create an account and then can host one or several short-form blogs known as Tumblelogs, each one with a unique URL. David Capece of *Fast Company* aptly typecasts Tumblr as a hybrid form of social networking, photo sharing and microblogging—something like a lovechild of Twitter, Flickr and Facebook. Much like Twitter, Tumblr facilitates the broadcasting of short bursts of information rather than the crafting of elaborate websites or lengthy diatribes. Tumblr has a clean and clear system for uploading photos and videos, much like Flickr. Like Facebook, while there are some privacy-setting options, the driving ethos of Tumblr's design is to facilitate sharing the things one is interested in and seeing and responding to the interests of others. Tumblr members manage their blogs from a "dashboard" that allows them to easily find, subscribe to and reblog content posted by the community of over 9 million Tumblelogs.[1] In Tumblr, participation equates to both the production of new material and the recycling of existing materials one is fond of. Thus, the stream of Tumblr content is a hybrid of newly-born creations and republished, possibly viral content.

For my courses, Tumblr has furnished a floating system of highways and hubs. Using the same account, I set up a separate Tumblelog for each of my classes. Each blog is customized with a specific aesthetic and loaded with specific course content such as the syllabus, links to readings and recommended online media. Students are tasked with creating their own Tumblelogs to post and share assignments. I then "follow" each of my student's blogs, and the students "follow" me and their peers. Instantly, we become a micro Tumblr community, posting to an audience of students and peers in addition to having our content viewable by the general public. By "following" my students, I get direct updates with the content they post as it is fed into my dashboard in a stack of posts, starting from the latest and ending with the oldest. No assignments are submitted in the form of printed copies. Instead, all assignments take the form of text, video, and photo posts, and are due 24 hours before our class meets. This gives me time to review all of the posts before we meet, which includes "liking" their posts by adding a heart icon and adding comments and links to their posts that I either message directly to the students or reblog onto the main class site for all the students to read. At the beginning of each class, I lead a ritual of reviewing the "greatest hits" of this week's Tumblr content. I show the main class blog and go over a few assignments that I reblogged for being challenging, problematic, or simply exceptional. Also during this time, I open the floor up to students who want to highlight new content on their own Tumblelogs or want to continue in class a discussion that started on Tumblr. This is also an entry point for more reticent students who are more vocal in Tumblr to translate their online participation to speaking in class. In this way, online styles and habits of participation and sharing affect and get translated into our classroom time. Students who are not likely to speak during the class will share ideas and comments on the Tumblelogs run by themselves and their peers. As an instructor, I feel at more ease calling on these students in class to discuss in person what they shared on the blog. This has been a strategy to open up the class discussion space to more voices and to utilize the Tumblr space as a less intimidating entry point for shyer students, to increase their class participation.

I have used Tumblr in a wide spectrum of courses, from graduate-level research seminars to undergraduate, first-year writing courses. Overall, the students have enjoyed having a dedicated web space where they not only post assignments, but build a personalized archive for their projects, ideas and research. There is a curated collection of tastefully designed "themes" available for site customization, giving students the opportunity to format their content to take the aesthetic of everything from minimalist blocks of color on a white background to the frayed pages of a travel journal. Students will often change the theme of their blogs more than once per semester and then change it towards the end of the course to a more simple, professional-looking design if they want to share their site as part of their portfolio. Also, since they consistently receive feedback from me and from their peers, they have a sense that they are not just doing homework for homework's sake, but rather that their work has a readership, relevancy and outreach, which motivates them to create work that is a reflection of who they are not just as students, but who they aspire to be as designers, writers, activists, researchers and complex physical and virtual citizens. In addition to serving to develop the students' holistic learning personas, the class Tumblr site fleshes out the class' identity, especially when I explain the course to guest speakers, critics and people we meet while on field trips. When I reference and direct outsiders to the site, the class becomes more accessible for them to grasp the purpose of the course and to take an interest in the work being developed over the course of the semester.

The other wonderful outcome is that since Tumblr is an easy, informal platform for content sharing, students often share additional, unsolicited posts that are their own writings or images, or reblogs of other Tumblelogs. This added content opens up a window for a broader understanding of who my students are, what interests them, and how they relate to their peers. Working on their Tumblr sites can blend into the time they spend active on other social media sites and feels less like the discrete mental and physical space of "doing homework," with the pressure to cut off other distractions. Of course this can have drawbacks if students start to use Tumblr too casually or get too easily distracted with reblogging photos of their friends rather than writing an analytical essay. But for the most part, many students report back that they "lose themselves" and "lose track of time" when writing their assignments in Tumblr and experience less of the feeling of writer's block or other anxieties than when trying to write assignments in Word or Pages. Overall, what results is a streaming chatter of short bursts of proscribed and impromptu information and ideas, a conversant virtual space that facilitates a culture of collaboration and dialogue in addition to a healthy dose of self-promotion and mini Internet fame.

Below are some highlighted aspects of the Tumblr platform as a tool for learning, sharing and self-assessment:

Tumblr Teaching

The format of following and reblogging allows for a decentralized critique, opening up feedback loops among students (as opposed to unilaterally from teacher to student). Given this mesh network condition, students are aware that they are writing for their peers and the general public, and thus can become more motivated to create work that stands out and will distinguish them among their peers and the massive blogging community. Additional rewards and incentives include students being able to track how many of their peers or members of the larger Tumblr community are following them, or liked or reblogged their posts. Lastly, students have a sense of accomplishment when I reblog their work to the main class Tumblelog, and receive consistent validation and acknowledgement throughout the semester as they accumulate "hearts" for well-received posts.

Tumblr Learning

It has been my experience that Tumblr promotes proactive study and research habits because it makes it easy for students to continuously post updates, share and store links and ideas, and pose questions. In this way, learning takes on a mutable form that focuses more on process than product. Students can be more experimental by editing or deleting posts and can easily return to projects they worked on previously to build on them. And like a Facebook wall, Tumblr lists blog posts in reverse chronological order. This creates a stacked history of their semester: an instant data visualization of the effort and evolution of their work over the course of the semester. Students can also customize their learning experience by reblogging the links that I or fellow students post and can thus curate what information is most useful to them. Without the pressure or constraint of page requirements, students often end up doing work beyond what I assign. I've found that especially when longer writing assignments are given, students will often surpass the minimum word requirement because they are not writing to fill up space as they tend to do when writing in a text editing program.

In addition to tracking individual learning trajectories, Tumblr functions well as community bulletin board for posting class plans and readings, distributing, posting and grading assignments, as well as performing as an informal sharing space among students. This also decentralizes learning away from the teacher to student knowledge or skill transfer, and distributes information exchange through both required and unsolicited postings. Beyond our class, students from other classes and the general network of Tumblr bloggers have taken an interest in our class, reblogging images and assignments, and subscribing the class Tumblelog.

Tumbling Onwards

Many of my students already have Tumblr blogs and they add another one to blog specifically for the class, and this becomes an extension to an online community they already participate in. Some students maintain their Tumblelogs for personal use after the semester is over, thus extending the boundaries of the course and the semester time frame. Tumblelogs. Even if students never update their blogs after the semester ends, their Tumblelogs stand as readily accessible archives and portfolios of their work that students can revisit. Lastly, there are some students from previous classes who maintain an interest in the learning community initiated by the class, and they continue to follow and reblog the posts by future students.

[1] According to a Tumblr website self-report, there are currently over nine million Tumblr bloggers, contributing on average two million posts per day. An estimated 15,000 people join Tumblr every day.

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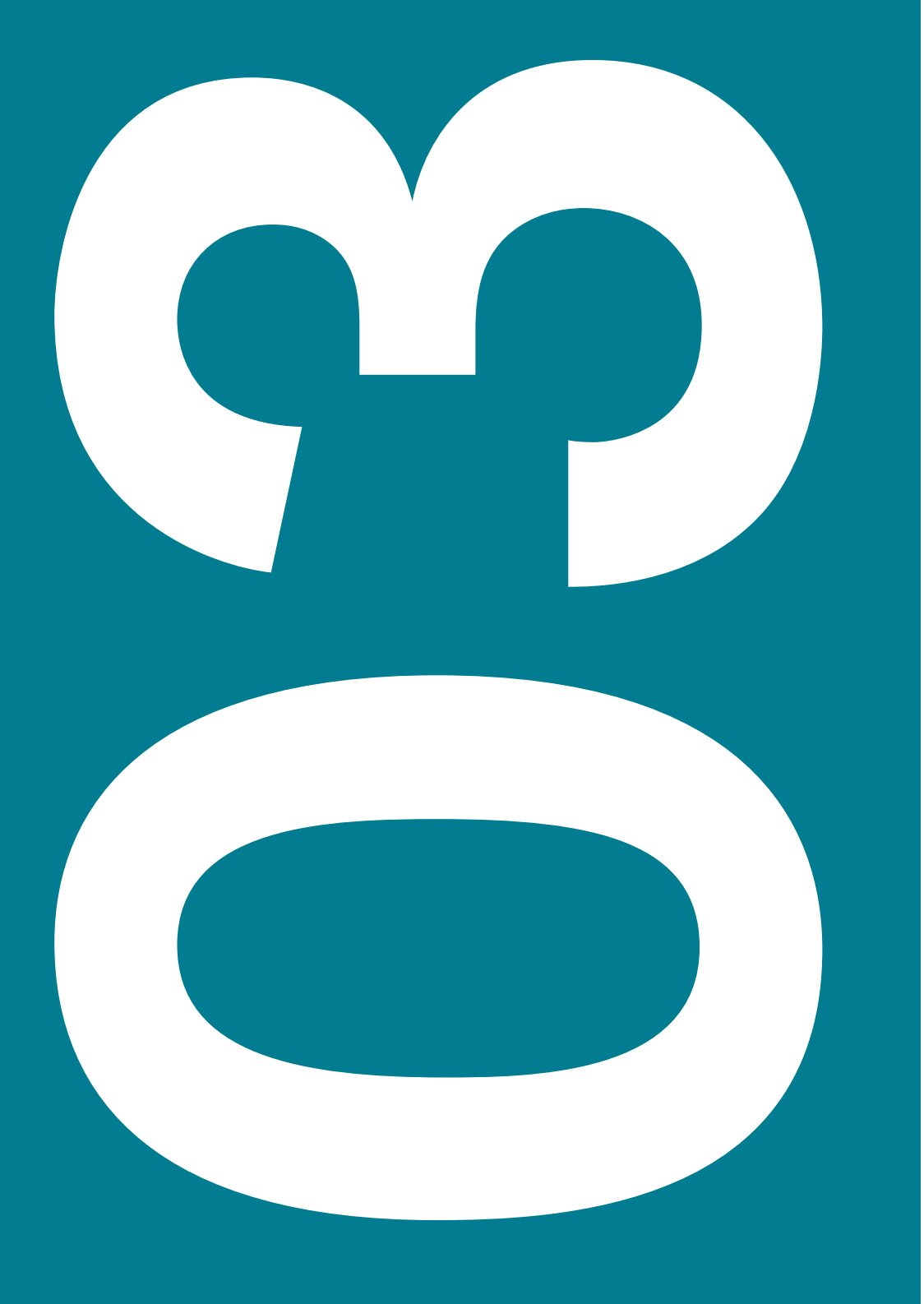


Blogging Course Texts
Enhancing Our Traditional Use of Textual Materials

Alex Halavais

Gall's Law dictates we should create complex systems by beginning with simple ones. It is observed most frequently in certain approaches to developing computer applications, where the task is brought down to its simplest component to create a working system, and then developed as an iterative process. The essential element of the scholarly endeavor is engaging in texts and discussing them. This is equally true for the toddler and the learned professor. If there is a technology that can enhance this process and can be provided to as many people as possible with little difficulty or expense, we should use it.

Intended and Unintended Consequences of Classroom Blogging

I started blogging with my undergraduate courses before I knew there was a word for it. It was the fall of 1999, and although my university provided listservs and forums for faculty who were interested, they tended to obscure discussion by threading conversations. Conversations quickly went off-topic. I used my rudimentary programming skills to create a site where we could post readings or other interesting bits and comment on them. The outcome for the course was far better than I had hoped for and, as a result, I have used blogs in nearly every course since.

This original blog met my needs by encouraging discussion that focused on the texts we were reading and watching, which continued over from our face-to-face meetings to the online world. My intention was to break down the artificial temporal walls that kept thought constrained to the meeting times of the course, but the forum had also, unexpectedly, broken down a lot of other walls.

First, students were much more aware of each other's work, which had a pronounced effect on the quality of that work. They were perfectly willing, as they told me candidly, to turn in poor work to the professor, but they were embarrassed for their peers to see anything but their best work.

Second, I had made no effort to restrict the site or the discussion to students in my class or my university. On several occasions, I have had students from other courses, and from other universities, virtually "sitting in" on the course blog because they found the content or the discussion interesting. In a surprisingly large number of cases, we have heard responses from the authors of the work we are reading who step in and respond to the discussion uninvited. This can be a bit of a shock to students who tend not to think of these scholars as real people, or at least as people who would be interested in students' ideas.

Third, having realized that the course is unconstrained, I have been pleasantly surprised by students who, without any structure of reward, contribute evidence from outside the readings in order to bolster their arguments in discussions. They might not link to the most credible sources, but that provides a learning opportunity in itself.

Finally, and in large part because of the outcomes above, the comments themselves become an important part of the text of a course, worthy of continuing discussion and commentary. In the best courses I become superfluous, first among equals. Blogs alone do not do this, of course, but by leveling the playing field between the experts we read, course instructors, teaching assistants, and students, we all became "participants."

There is no particular pedagogy baked in to blogging, but there are affordances that can be leveraged more or less effectively. Blogs add very little value if they are not connected to the outside world in interesting ways and allowed to shape expectations and teaching. Those who have tried course blogging and had it fail have largely been those who simply "add blogging" without making it central to the organization of the course. In particular, this seems to be the case of "blogging" tools that are placed in the context of traditional learning management systems. Blogging is a disruptive technology, and so one needs to be ready to guide that disruption in positive directions.

Assessment

As a result of these experiences with blogging, I have adjusted my expectations of students. Most course objectives and rubrics are designed for sufficiency, not excellence. I have a single requirement for an A in most of my courses at this point: teach the rest of the class something about the subject matter we would not already know. There is no single path toward this objective; it is, by definition, a surprise to me. Students have been trained that they are in training, and that this is a game with just one possible win state: an A at the end of the semester. This idea is enforced by multiple choice exams, and by rubrics of assessment that are linear and one-dimensional, clearly indicating what is sufficient at each grade level. Sufficiency is seen as the equivalent of excellence. Many students, no matter their GPA when they arrive at my course, find the open challenge to "surprise the professor" liberating. And I find the work they do, in return, more challenging and interesting.

What constitutes assessment in my courses has also changed. One of the most common concerns I hear from instructors just starting to use blogging is that they will be overwhelmed by the amount of writing their students are doing. One should take a moment to appreciate this as a success before arriving at a strategy for "grading the blogs."

I read my students' blogs the way I read most blogs: I set them up in a feed reader (these days, I use Google Reader) and skim. The same is true for comments when I am grading comments. I do not read each blog entry in detail. When an entry catches my eye, I comment on it. It is especially important to comment on more blog posts at the beginning of the course, but there is no reason to comment on every post a student makes. That sets up an impossible task and would likely lead to superficial commentary.

The students in my courses evaluate each other and they evaluate themselves. As part of their work, they are required to comment on each other's work. Normally, this means that they are expected to leave three comments each week on other students' blog posts. I also ask them to post responses to the

responses that have most recently been posted: a sort of exquisite corpse of discussion that builds on the "Yes, and . . . " exercises found in improvisational theater.

Several times each semester, students provide a self-assessment, indicating (among other things), three blog entries or comments they have made that they think are particularly good, with an explanation as to why they were picked. They also identify three comments or posts by others that they think are particularly good, encouraging them to look to peers as models. I use Google Docs Forms to collect these reports, as it makes organizing them easier, but pen and paper can also work. Not infrequently, students will see value in a comment or post that I might have overlooked. I respond to these assessments with indications of where they are doing well and where they might improve.

Although the content is important, and I often use other forms of assessment to gauge their ability to produce good long-form work, the main function of assessing the blogs and comments is to underscore the importance of metacognition. The self-assessment allows students to reflect on their own learning and their own work.

By freeing myself from seeing every blog entry as an assignment, I remain more sane during the semester, and students have more freedom to experiment. I have had more than a hundred students blogging in a single course. I did not always know everything that was happening on every blog, but the students both enjoyed the course more and improved in other measures of learning.

There are a set of decisions surrounding the use of blogs in courses, the most central of which are: How many? How open? and, What platform?

The One or the Many

Many instructors teach with a single, central blog. Particularly if one is only beginning to employ blogs, this is the most appropriate path. Moving to individual blogs for each student, or for groups of students, makes managing the process more complex, and virtually ensures the teacher will become the "help desk" for one or more of the students in the course. There are significant advantages to having students run their own blogs. It allows them to have a place that is a "home" that they can shape and personalize in the way that they want. This space that is both open to others but controlled entirely by the student fosters a certain degree of creativity and personal investment in the course material. Further and more importantly, perhaps, a personal blog is more likely to travel beyond the end of the course. Some (though not all) become part of a long-term personal learning environment, allowing students to collect a portfolio of their learning over time, especially when an ongoing blog is supported by other faculty.

There are difficulties, however, with this approach. The most serious is that the balance can tip too far in favor of the individual. If the intent of blogging is to gather around texts and learn more about them through discussion, individual blogs add a layer of complexity to the process of assembling and making sense of the writing. This can be accomplished by creating a site that aggregates content from all of these blogs and by providing a good listing of all the blogs in the course for people to follow, but the process is less than ideal. The alternative, then, is a single course blog with students both reading and often contributing to a core set of texts that the course is organized around.

Bring Down Those Walls

The next common question is whether to open up course discussion; or, as it is usually couched, how to restrict access to it. I always start with the assumption that scholarly work should be open and only work on closed projects when there are good reasons to do so. Some have argued that making students work in public unfairly exposes their untutored work to future employers, future friends and lovers, competitors, and eventually their children.

Since I try to encourage open and enthusiastic failure in my courses (we learn mainly through failing), I am sympathetic to this criticism. My initial impulse in blogging was not spurred by an idealistic dedication to open discourse, but once I discovered how much it improved my courses, it was difficult to go back. Not only do students do better work and learn more in open courses, but we collectively contribute to the work out there for others to repurpose for their own learning. Being able to follow the "trails" of other novices serves as a sort of virtual apprenticeship for lurkers during the course or after the fact. It also allows my students to return to the site and revisit their work and the texts once the course has concluded.

I urge my students to blog publicly under a pseudonym in order to encourage risk-taking. This draws in many of the advantages of public blogging without as many dangers. In particular, when I have students who are journalists

or work in the media, they often are forbidden by contract from public writing. But even those who are not journalists can benefit from a "trial identity" in their blogged work. Though I sometimes have students fill out a roster to share with one another to identify their peers, it is often more fun to allow them to remain pseudonymous and they spend the semester trying to link the blog and in-person personae.

Lately, I have protected some course blogs. The reason for this is mainly one of intellectual property. Since we are commenting on copyrighted texts, there unfortunately needs to be some barrier to openly accessing that material. In the past, I could separate out the texts we were reading from the discussion, but now that I've integrated side note commenting, the two are usually inseparable.

Choose Your Weapons

The essential element when choosing a blog platform should be to keep it simple. It is important to avoid the constricting tools found in proprietary Learning Management Systems (LMS). If the aim in using a blog is to allow students to be more self-motivated, to allow them to explore and to make learning personalized, monolithic and closed platforms like that provided by Blackboard tend to negate these aspirations.

There are a number of open commercial blog services that can set you up with a blog within minutes. Blogger is the most popular, though there are certain advantages to using something like Posterous, which makes the process of blogging very simple. Unless it is a course on social media, as little time as possible should be spent learning to use the tool, and as much time as possible using it.

Despite all of this, I encourage or require students to use WordPress. There are a number of reasons for this. WordPress is the most popular blogging software today, and is increasingly used in corporate settings. Even Microsoft now uses WordPress. As a result, students' efforts in learning how to blog on the platform will pay dividends beyond graduation, something that cannot generally be said for a LMS. WordPress is also a powerful tool that is easy to use. If students decide they want to gain a greater depth of knowledge about blogging or web publishing, a WordPress blog is a good place to start. If you have a specialized need for your course, or just want to try something new, WordPress has thousands of plug-ins and themes ready for use.

There are a number of ways to set up a WordPress blog, either for your class or for individual students. By far the easiest is to go to http://wordpress.com and set up a free blog. The biggest advantages to doing so are the ease of setting up the blog, the lack of expense, and the convenience of having it maintained for you. Particularly if you are just starting out with educational blogging, or with WordPress, this is the obvious choice.

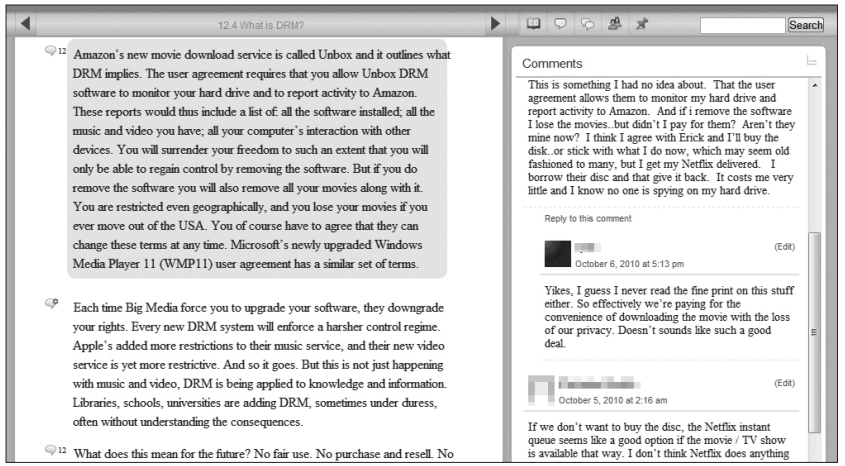
Unfortunately, WordPress.com does not provide the same degree of flexibility as hosting your own copy of the WordPress software. You will not, for example, have access to some interesting plug-ins or extensions to the system. If you require a bit more from your system, you might turn to one of the inexpensive shared web hosts, many of which provide "one-click" installations of the WordPress software.

Marginalia

Thanks to Edward Tufte, I am a great fan of side notes. I am surprised it has taken me so long to apply them to my teaching. Most blogging systems provide some means for leaving comments, which normally appear beneath each entry. If your teaching involves reading and responding to texts, this ability to comment on a work is fairly essential. But there are advantages to being able to comment not just on an entire text, but on a particular part of that text.

There are a number of tools that allow you to highlight and comment on the web and then share those comments in various ways. Diigo[1] holds some exciting potential here, though in practice I have found it to be a difficult tool to use and fussy about certain kinds of texts. Like many tools in this category, I think, it fails to scale well, lulling you into complacency with the first few comments, then becoming more and more bogged down as multiple comments are added to the same document.

The Commentpress plug-in for WordPress was created precisely to allow for scholarly comment on texts. It has been used so far mainly by academics commenting on each other's work, but it is also an excellent tool for teaching. Students read carefully, comment on the text, and on each other's comments. This is a different sort of interaction with the text than you might find when assigning a response paper; students pay closer attention to individual paragraphs, since they know that is what they are commenting on. This approach can be used effectively along with longer review essays and responses, since



Example of Commentpress site.

students can rely not only on their own marginalia, but that of others. The move to peer-to-peer learning and open access to materials and methods is not something new; it is only rediscovered. The question has to remain not, "What can these tools do for me?" but rather, "What tools do I need to support good learning communities?" However imperfectly, convivial tools like Commentpress support what we have known for centuries is conducive to learning.

[1] See <http://www.diigo.com/>.

Socializing Blogs, a Guide for Beginners

Tiffany Holmes

I have been teaching with digital media since 1994. Computers, software and, more recently, social media have enhanced my ability to provide hands-on, memorable instruction for studio, seminar and art history lecture classes.

From my perspective, digital media has two major failings: its obvious transience and archival challenges. Next semester, if I teach the same courses, I will need to completely overhaul my syllabus, readings, handouts and how-to guides. The preparatory work for an instructor working with digital media is immense, but there are many rewards to be gained from teaching in this manner. Unfortunately, many of my favorite student works from a decade or so ago are stored on SyQuest drives, Zip disks or even floppies. If I ever have the time, or a willing assistant, I look forward to rescuing my files from antiquated media formats and posting such work on YouTube or Flickr. I hope these public databases are being continuously updated and archived by the corporate behemoths that own them so that I won't have this same problem again in 2020. Students benefit tremendously from seeing examples of previous peer work.

Because of the changing nature of digital media, my teaching methods change from year to year. This fall, for example, I am able to offer Lynda[1] software tu-

torials to my students free-of-charge due to an institutional agreement. This is a boon as it enables students to practice self-learning and self-reliance. Previously, I had to organize technical training sessions with a teaching assistant to provide enrichment for students who were having difficulty mastering a particular tool or technique.

Perhaps the greatest windfall that digital media has delivered is the ability to instantly "fly" a guest speaker in to lecture via Skype or iChat. Seminar classes particularly benefit from a five to ten minute appearance by an artist or theorist they know only from museum shows or exhibition catalogues. It is so easy to arrange and environmentally far more responsible than flying them in for a day or less. Given the real challenges of climate change as well as jam-packed schedules, there is little reason to spend diminishing travel budgets on airfare. The learning advantages of online lecture exchange are numerous: this practice increases the variety of voices in the seminar, enables students to ask live questions of well-known figures in the field regardless of geographic location, and expands knowledge of the individual beyond the typical information that is available online or in texts.

In all of my courses, I train my students to become critical practitioners of digital media rather than "users." Generally, I assign Simon Penny's 1993 essay "Consumer Culture and the Technological Imperative: The Artist in Dataspace" to stimulate discussion about the usage of proprietary software vs. open-source alternatives. I like to present at least two versions of each sort of software when doing any kind of demonstration in a production class. For example, if I were teaching a lesson in digital compositing, I would execute the same actions twice, first in Photoshop and then in Gimp. Likewise, if I were explaining how to create a slideshow for an upcoming Pecha Kucha class, I would demonstrate slide creation techniques in Keynote, PowerPoint and Google Docs. Incidentally, the Pecha Kucha is one of the best assignments for training students to share their work and honing effective and efficient public speaking skills.

My experiences with Processing provide a brief example of a mode of enabling students to become critical, self-sufficient practitioners of digital media. Teaching art students a computer programming language is one of the more challenging aspects of my duties over the past decade. The impending obsolescence of tools like Director forced me to explore Processing[2] as a data visualization and interactive installation software. Now, I am thrilled I was pushed to learn Processing early in 2005. Processing (2001) is a free, open-source alternative to proprietary software tools with expensive licenses, making it accessible to individual students. Its open-source status encourages the community participation and collaboration that is vital to Processing's growth. Contributors share programs, contribute code, answer questions in the discussion forum and build libraries to extend the possibilities of the software. The Processing community has written over seventy libraries to facilitate computer vision, data visualization, music, networking and electronics. In short, this website is a boon to students and instructors working to facilitate criticality and creative use of software.

The success of Processing stimulated the growth of an enormous global network, Wiki, and an archive of tutorials. This sort of website is essential for showing students that no single individual has all of the answers to coding problems; the forum answers simple and complex queries in less than a day. The online resources are invaluable and provide an example of one of the best things to come forth from the Social Web for people interested in examples of responsive, generative and interactive media. Processing has attracted a diverse community of individuals from research scientists to high school students who are expanding the reach of the software even as I type. This is one tool I will certainly continue to use in future classes.

As I consider my curriculum plan for the next semester, I generally try to commit to using a minimum of one new tool on which to base an assignment. In 2010-2011, this project will be a data visualization collaboration challenge using the online resources at Visualizing.[3] With its beta site, which opened in September of 2010, Visualizing intends to attract a community of creative people working to simplify complex issues through data and design, building on the promise of more and more government agencies, NGOs and companies opening up their data for the public to see and use in experimental and useful modes. Learning on the fly is one of the key components of being a digital media instructor. The launch of sites like Visualizing keeps life interesting for me as I plan future curricula. Since this site provides a free archive for student work, no external storage media will be required.

WordPress

The word "blog" is a 21st century composite of two words: "web" and "log." The term means exactly that: a blog is a log (generally of writing) posted publicly on the World Wide Web.

This particular form of immediate and global self-publishing, made possible by technology widely available only for the past decade or so, permits little or no retroactive editing and removes from the act of writing any lengthy review from editorial types. Blogs tend to celebrate the unstructured expression of instant thought—though artists have pioneered new ways of using blogs to archive public or durational work.

Blogs are accountable in instant and inescapable ways to readers and other bloggers, and a blog post is linked via hypertext to continuously multiplying references and sources. Unlike any single piece of print copy, a blog's borders are extremely porous and its truth inherently momentary. The long-term effects of this immensely popular act of writing and communicating are still sinking in, especially for anyone with an interest in journalism or the Social Web.

WordPress is an open-source content management system (CMS) that is often used as a blog publishing application. WordPress has a templating system, which includes widgets that can be rearranged without editing PHP or HTML code, as well as themes that can be installed and switched between with a click or two that can change the look and feel of a website instantly. The PHP and HTML code in themes can also be edited for more advanced customizations. Advanced users can create code to write their own themes, many of which are released for public usage. WordPress also features integrated link management; a search-engine-friendly, clean permalink structure; the ability to assign nested, multiple categories to articles; and support for tagging of posts and articles. Used by over 12% of the 1,000,000 biggest websites, WordPress is the most popular CMS in use today (Wikipedia).

Matt Mullenweg released the very first version of WordPress on May 27, 2003. His overall goal in making WordPress free and open-source was to enhance the look and feel of everyday writing. As of August 2010, version 3.0 had been downloaded over 12.5 million times. WordPress has grown to be the largest self-hosted blogging tool in the world, used on millions of sites and seen by tens of millions of people every day.

Teaching the craft of blogging with WordPress to fledgling writers has many ups and downs. To start with the positives, blogging within even a small classroom environment enables young people to interact with an audience—their peers—and receive immediate feedback. WordPress is the tool that enables students to share their creative projects in a clean, well organized, visually attractive website that requires very little knowledge of HTML, PHP or MySQL: the underlying code of content management systems. Believe me, I am jealous as I watch them. My first website had a pink background with a very distracting purple Times font. Fortunately, nobody read my first online journaling attempts back in 1996. Those slick WordPress themes, along with the networked system of trackbacks and pings, were not available to me as a graduate student.

Atlantic Magazine blogger Andrew Sullivan was exultant when he discovered the blog form. Like my most enthusiastic students, he likened the experience to a drug high: "The simple experience of being able to directly broadcast my own words to readers was an exhilarating literary liberation. Unlike the current generation of writers, who have only ever blogged, I knew firsthand what the alternative meant. I'd edited a weekly print magazine, *The New Republic,* for five years, and written countless columns and essays for a variety of traditional outlets. And in all this, I'd often chafed, as most writers do, at the endless delays, revisions, office politics, editorial fights and last-minute cuts for space that dead-tree publishing entails. Blogging—even to an audience of a few hundred in the early days—was intoxicatingly free in comparison. Like taking a narcotic."

I think Sullivan's comments capture the most exciting aspects of blogging for first time users. In sum, the pros of WordPress are manifold. The tool promotes journalistic or creative writing while the built-in comment system works as an informal mode of positive reinforcement for student writers who are dying for anyone to critique their work. WordPress' easy-to-use interface, rooted in the "Dashboard," requires no knowledge of complex computer programming techniques. The various plug-ins enable web-savvy students to import their pictures to their blog (Flickrpress), tweet their new blog posts (TweetSuite), and profile the most active commenters (Nick Momrik's Most Commented).

At this point, the picture looks rather rosy. However, there are a few drawbacks to using this blog production tool as a pedagogical method. First of all, some students are reticent to share their work with anyone, much less the entire WWW. Also, because it is so easy to publish a post, students tend to favor rapid-fire writing regimes, often late at night when they are less clear-headed than usual. For the most talented and verbose students, this method can work as long as they took a decent keyboarding class in high

school or college. Another pet peeve of mine is that the small text window in WordPress' Dashboard resembles the screen of the iPhone and encourages students to abandon standard capitalization and punctuation rules in favor of an abbreviated personal syntax. Recently, a student turned me on to a plug-in called "After the Deadline" which promises a comprehensive spelling and grammar check for sleep-deprived bloggers.

I teach a graduate seminar called *Wired Writing: Culture and Community on the WWW* at the School of the Art Institute of Chicago.[4] This course attracts an interesting blend of students from the New Arts Journalism program and also lures a few MFA students in studio or creative writing. The class has a discussion component in which we debate various aspects of the Social Web as well as a production element where we make blogs and examine the tools that are profiled in our critical readings.

My semester assignment is not groundbreaking, but it is effective: every student must create a self-hosted WordPress blog focused on a specific dilemma, neighborhood beat, or creative problem. Weekly, students post twice to their blogs in addition to composing a minimum of one cogent comment on a peer's blog. Although I encourage students to invite guest writers to post, each of the individual blogs are primarily authored by one person—and here lies a major challenge: finding a single, consistent voice. Because students suddenly have to keep up with twelve blogs, they are forced into adopting a news aggregator like Google Reader and become interested in WordPress plug-ins that reward active commenters. The social media tools start to make sense to them as they decipher the landscape of blogging from a hands-on perspective.

The main problem with this assignment is that students want to completely redesign standard themes. Most feel comfortable editing an existing style sheet for basic items like font type, size and color. However, layout preferences and nested ‹div› tags tend to perplex and frustrate young people who are very new to HTML and PHP. Each year, a few bloggers concentrate too much on the appearance of their website when they should be focused on content preparation. Perhaps future iterations of this assignment might restrict students to altering only standard typographic tags to enable them to focus entirely on content.

Many of my students have successfully utilized various social media tools to garner a substantial readership for their blogs. For example, Olivia Liendo created a web presence for El Sistema,[5] a publicly financed voluntary sector music education program in Venezuela, originally called Social Action for Music. Quintin Roper's blog, *Nobody Dances Here*[6] has a more expanded focus of art, fashion, and progressive culture and impressed his new employers at MTV.

Overall, I believe this assignment's best feature is to immerse students in the weekly problem of creating original, accurate, newsworthy content for their blogs. Many experts have debated the issues facing the print media industries today (Paul Starr; Clay Shirky; Andrew Sullivan). In class, students read and discuss the predicaments faced by the newspaper business and simultaneously experience them firsthand when they consume stories produced by bigger agencies that they then retool, re-tweet, or otherwise reference in a WordPress post. Students see that their individual blogs are linked and therefore codependent on the existence of a whole host of public resources, many of which would not survive without corporate funding of some kind. The debates that this assignment engenders are exactly the ones we will face as the world of social media continues to refine itself. WordPress is a simple tool that enables my students to create unique blogs that have lives beyond the classroom.

[1] See ‹http://www.lynda.com/›.
[2] See ‹http://processing.org/›.
[3] See ‹http://www.visualizing.org/›.
[4] Syllabus and more available at ‹http://wiredwriting.org›.
[5] See ‹http://www.elsistema.org/›.
[6] See ‹http://www.nobodydanceshere.com/›.

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When Teaching Becomes an Interaction Design Task

Networking the Classroom with Collaborative Blogs

Mushon Zer-Aviv

Pedagogical Practice

My creative, professional and intellectual practices all revolve around new media and information technologies. In the past decade, I have used digital media as both a subject of and a means for learning. I have been teaching Web/Interaction Design classes in institutions such as Shenkar (Tel Aviv), Parsons (New York City) and Bezalel (Jerusalem) as well as Digital Media theory and research classes in Media Culture and Communication at New York University.

The students I teach use collaborative blogs, social bookmarking, mailing lists, version control systems (for code), Wikis, slide sharing, video sharing, podcasts, graphics software, mapping tools, and sometimes they are even required to use pencil and paper. This multiplicity of tools has a contradictory effect. On one hand, students are continually challenged by technology. On the other hand, they are never constrained to a single tool. Learning does not have a "killer app," that one necessary tool everyone just has to use. Moreover, those attempting to develop such "killer apps" end up often killing learning itself.

My experience with the tools I choose for my own practice guides my choice of tools for my students. I see no point in using tools and methodologies in

class that would be useless outside class. This is equivalent to saying that learning is something that happens in class but not outside it. For example, for my design students I set up a free SVN code repository tool for collaboration and file version control. At the end of the semester, the repository would not be maintained any longer and the whole semester's coursework would become the equivalent of "abandonware," deserted by its authors and users. Recently, I got students to explore Github,[1] where they manage their own code repositories throughout the semester and beyond it.

The great paradox of teaching students to use tools is the certainty that these tools will become obsolete, some even by the end of the semester. That is why we should teach methodology, not technology. We should value the "why" over the "how" because the latter will change much faster than the former. This is more easily said than done. Students demand to learn skills they can evaluate; "Can you use Photoshop?" is more easily answered than "Can you manipulate an image?"

Moreover, the market (with which we educators maintain a love/hate relationship) reinforces similar demands. To keep the market influences away from the classroom, many educators value open-source over proprietary software. Being an open-source software enthusiast who devotes a substantial part of his practice to this collaborative method, I definitely share this sentiment. Yet, I wonder whether we are really serving students well by replacing the "Can you use Photoshop?"[2] question with "Can you use Gimp?"[3] Even though the choice of open-source software is more politically correct, it only partly answers only one of the parameters we should evaluate, the political one. There are many other parameters to evaluate and we should equip our students to think critically about these decisions, evaluate tools and optionally extend them through hacks, mash-ups, code and brute force.

I believe we should try to teach our students to teach themselves. This, too, is more easily said than done. Acquiring self-education skills is demanding and some students get it more easily than others. When we throw students into the water, those who can swim will swim far, but those who would drown end up discouraged and frustrated. It might have been easier to learn and excel with one tool with fixed rules and a stable environment, but that is not the world we live in anymore. Fine tuning a balanced strategy for teaching is not a simple task. Though it seems clear that we need to challenge our students, it is easy to celebrate the successes of some and blame the failures of others on lack of hard work. Like myself, many educators are also early adopters of digital tools and are more comfortable with this methodology. Are we promoting a learning environment that benefits those like us and cripples others? I have to admit I am still grappling with this question and would appreciate a wider debate of this subject.

Another caveat of the networked classroom is networking technology at large: information overload and attention scarcity. We encourage students to participate, create and discuss. It seems that our creative capabilities have been widely extended through digital media and online distribution, while our receptive skills have not evolved as much. For better or worse, the classic master-apprentice relationship fostered a high level of dependency and trust. We should cherish the liberty, pluralism and healthy skepticism that comes when this centralized model is challenged. At the same time, decentralized and distributed models of information creation and consumption result in low attention span, murky evaluation standards and diminishing levels of trust. These qualities are challenging for us as educators and learners and they become even more challenging when we are encouraged to further disembody the classroom in the form of Web-based education.

This networked learning experience requires establishing trust through a lively, unplugged, face-to-face classroom experience. I try to use my interaction designer skills to design a structured online experience to funnel the limited attention spans of both myself and my students. But I have not found a way to establish the required level of trust in the form of an online-only experience. Finally, these are urgent times for academia. The crisis of authority experienced across all information economies is likely to hit academic institutions next. For the time being, society still entrusts us with the classic roles of gate-keeping, accreditation and the standardization of intellectual merit. For better and worse, the network will change both that trust and these roles. We should not just stand by as this happens.

Teaching with Collaborative Blogs: A Brief History

In "the early days," tech-savvy individual authors "hand coded" weblogs as static HTML websites. These were later developed by ambitious, skilled coders into custom Content Management Systems (CMS). As the reverse-chronological blog format evolved, more systems such as Blogger (1999), Movable Type (2001) and WordPress (2003) were adopted.[4] This democratization

of the blogging medium nourished different use patterns by authors of different technical skills.

While the blog format was mainly celebrated as a revolutionary, individuated printing press, some still choose to use it collaboratively. The *raison d'etre* and hence the publishing dynamics for these collaborative blogs varies. Some of them started when individual bloggers gained popularity and chose to transform their blog into a wider online publication (e.g., Boing Boing, Lifehacker, TechCrunch).[5] Others gather a group of authors to focus on a topic (e.g., RedState, Huffington Post).[6]

The most popular blogs in the world today are collaborative blogs. Some of them employ a whole editorial staff with full-time employees, yet they still choose to maintain the "blog" categorization, which is generally considered more grassroots and "authentic." On the other end, in many small-circulation collaborative blogs, the authors serve as each other's audiences. The writing styles of these blogs are much more casual and the posts are often less content-driven and more about conversation.

The collaborative blog format is distinguishable from networks of individual blogs and from social networking sites as it values the unified, multi-voiced feed over the individuated, author-based filter. However, as traditional online magazines adopt some key aspects from blogs, such as reverse chronological order, reader comments and syndication, and as collaborative blogs further customize their delivery of content, the lines between the collaborative blog and the online magazine blur.

The rise of open-source blogging systems has nourished a lot of experimentation in the blogging field and some innovative collaborative blogging models. One example is P2, a collaborative blogging theme for WordPress that blurs the lines between posts, comments and updates. The theme inspired by Twitter and microblogging takes advantage of more recent interaction design patterns like inline editing, front-end and mobile posting and rapid "push" updates to foster a more casual conversational interaction.

The collaborative blog format is an experiment in online group dynamics. Such experiments take place in many fields, including academia. While the blog format has been widely adopted by individual academics world-wide, many institutions have started adopting collaborative blogs that amplify, extend, and might one day even replace the role of their academic journal. These online experiments in new forms for academic publishing challenge the cultures of peer review, public vs. private debates, intellectual property, academic freedom and accreditation.

Some of these collaborative blogs have been used to extend the classroom experience too. Educators who incorporate collaborative blogs into their curriculum invite their students to create some of the content that will lead the class through the semester. These contributions can be anything from a single guest post to a full integration of blogging and commenting into class dynamics with multiple postings from students every day through the week. We already see some educators developing custom plug-ins to support this custom use (like Grader, Courseware and others).

What I Learned

I have been teaching with blogs since 2003. Initially, I used a Movable Type blog as an online format for paperless, weekly design assignments and an easy way to answer and archive the students' Q & A. Quickly I realized that it would not be too hard to get the students to post everything on the blog and use it as the focal point of the class activity. The collaborative blog proved successful, streamlining course dynamics where we had previously been disrupted by file transfers and incompatibility issues.

A few years later, I became a student once more and re-encountered the educational use of blogs as a graduate student. There is no polite way of saying this: I simply hated it. The student blog was a nuisance. It was hard enough to follow the class, and writing a blog post for it was just a pain in the neck. No one would ever look at the posts in class or ever comment on anything there. Students would either write long and exhausting posts or very short ones just to meet the requirement. The professors wanted us to document and to use the media, but we did it only because they said so, not because we acknowledged the value of the assignment.

The approach my graduate school took was to create a blog network. Each student would run their own blog and post their research and assignments individually. The class blog, functioning as a hub, would then aggregate the student posts through RSS feeds and, on top of that, add some posts and instructions from the professor. Politically, I definitely valued this networked model. It gave the students much more freedom to manage their blogs on their own terms and to control their own data. Practically, though, it failed.

As soon as I graduated, I started teaching both design and media theory classes, both with collaborative blogs. The shortcomings of blogs, which I experienced as a student, clarified what worked and what did not in the collaborative blog format. The first thing I did was centralize everything under a single, collaborative WordPress blog. Students got limited authoring permissions, allowing them to publish posts, upload files, comments and so on. They could do everything they needed to do, nothing more, nothing less.

The class blog became at least as important as the classroom; it is the core of everything we do and it is constantly with us, projected on the screen. Everything is posted to the class blog; even when a student gets feedback in class, they are required to then post it in bullet points as a comment to their post. The blog extends the course beyond the time and space constraints of the classroom as students publish and comment every day, around the clock.

If students do not read the assigned texts, class discussions may result in long embarrassing silences. To counter that I—along with most educators in the field—designate assigned materials as either "required" or "recommended," where the former is often lighter reading or an audio or video file, and the latter is more involved. One student is assigned to lead the class by reading and summarizing all the material in a post and publishing it 48 hours before class. The rest of the students are required to read and comment on that post. This methodology requires that they engage in a written debate and develop critical perspectives about the reading. The students challenge arguments made on other comments and on the summary post. By class time, the discussion has already begun, and the students are eager to reiterate and further develop their arguments.

We cannot discuss every student's work in class, so I built game mechanics to address that. Most of the debate happens as comments on the blog. In class, we highlight some of these. A student is asked to introduce a post they commented on and to raise their takes on that post. The student who wrote the post gets to hear about their research as understood by their peers and expand the discussion in class. Then that student is required to discuss another student's post and the chain continues. We rarely cover half of the students' posts, but the networked dynamic keeps everyone on their toes and the online discussion compensates for what we do not achieve face-to-face.

Class dynamics are an interaction design challenge, and my classes function as close-knit social networks, both online and offline. The blog interface encourages students to position their avatars (not necessarily their faces) next to their posts and comment to further emphasize identity and community. I control the interface, but I encourage the students to propose ways of modifying, challenging and even subverting the interface through any of the 11,500 (as of October 2010) plug-ins on WordPress. One student persuaded me to add a live chat to the blog sidebar. This completely undermined my centralized control of the discussion as the discussion happened on the screen, peer-to-peer, literally behind my back. This student later co-founded the Diaspora project.[7]

The posts are published for the world to see, and, as is common in the blogosphere, the posts' subjects often respond in the comments, extending or even contesting the student's post. One student put some in Washington on the defense when her post labeled parts of the Obama administration's "Open Data" initiative as "transparency-washing" (Jaschik 2010).

The WordPress platform is constantly on the cutting edge of web publishing. It allows for vast customization and integration. We were able to pull in images, audio (student podcasts), video, slide shows, maps, etc.: whatever technology the student might need.

Finally, students were asked to collaboratively contribute the knowledge they acquired in class to Wikipedia (thereby reversing the controversial use of Wikipedia as reference) (Jaschik 2007).

At the end of the semester, I have a lot of data to evaluate the volume, persistence and quality of each student's contribution. Grades are very foreign to the dynamics of the class, as they represent but a cold, mathematical measurement of what has become a much more engaged learning experience. After the last class I export the content of the blog and mail it to the students. It is their data; they deserve to keep it. The blog is maintained as an archive, and students can always log-in, post again, change their previous posts, or change their display names. Every now and then, a random comment is added; when the semester ends, the class persists.

Sample Assignment: A Week Without Google

In trying to equip our students with self-sufficient problem solving skills, we might suggest: "Google is your friend." But is Google really their friend?

Rather than speculate whether this data-omnivorous corporation is a friend, foe, sinister evil entity, or benevolent dictator, or whether it embodies any other humanizing characteristics, we can try to measure to what degree we are actually dependent on it. Towards the end of the third class in my "Topics in Digital Media" course at New York University, I inform the students of the terrible news:

In the coming week, starting from the end of this class, we will attempt to make it through a whole week without using any Google service. Not Google Search, not Gmail, not Google Talk, not Google Docs, not Google Maps, not Google Earth, not Google News, not Google Groups, not YouTube, not Blogger, not Picasa, not Google Calendar, not Google Checkout, not iGoogle, not Google Translate, not Google Voice, not Google Latitude, not Google Chrome, not Google Wave, not Google SideWiki. If you have an Android phone, you are not allowed to use Google services with it, talk and text only … you get the point. (For a partial list of what you are not allowed to use, go here[8]. . . while you still can.)

We set rules for what we will need to do when we are ambushed by an embedded YouTube video or a Google Map; we share tips and tricks for ways of protecting ourselves; and we promise to comment on the blog every time we trip up and to write a post of defeat if and when we give up.

The results have been fascinating for all of the five times I ran this experiment (Spring-08, Fall-08, Spring-09, Fall-09, Spring-10). After the initial frustration, students felt challenged enough to make it through the week:

"i made it! so far at least with 24 hours to go! it was super tempting to log into my google maps especially when i was wandering around the most confusing neighborhood in the world, the west village! but i resisted!" —*NateGsays*

"Everyone should check out the Firefox Add-on LeechBlock, which I posted to our del.icio.us last night.

Steps:
1. Install
2. Restart Firefox
3. Go to Tools -> LeechBlock -> Options
4. Enter google.com, gmail.com, blogger.com, youtube.com, and whatever else (no commas, separated into lines) into the first field
5. Click "All Day" on the right, about halfway down
6. Click "Every Day," a little bit further down
7. Press "OK""
—*Harold Li*

"My boss literally passed by and asked why I wasn't using Google to do the daily search. The boss looked angry so I just went back to Google." —*Karina*

The comments served as a forum to share experiences, successes and failures, functioning as a 24/7 support group. The students were surprised to discover how automatic their subconscious browsing habits had become. Bounding these habits allowed them to critically examine their single-vendor dependency and possible alternatives to it.

Joining my students in this assignment every semester, I discovered two things. First, and even though I had expected the opposite, every semester it actually became easier for me to handle my Google fast, probably due to my increasing suspicion of this dependency. Second, social ties in class made a giant leap right after this unique, awkward, shared no-Google-experience, proving true the saying, "The enemy of my enemy is my friend."

[1] See ‹http://github.com/›.
[2] See ‹http://photoshop.com/›.
[3] See (the GNU Image Manipulation Program) ‹http://www.gimp.org/›.
[4] See ‹http://movabletype.org/›; ‹http://wordpress.org/›.
[5] See ‹http://www.boingboing.net›; ‹http://lifehacker.com/›; ‹http://techcrunch.com/›.
[6] See ‹http://www.redstate.com/›; ‹http://www.huffingtonpost.com/›.
[7] See ‹https://joindiaspora.com/›.
[8] See Google Dashboard ‹https://www.google.com/dashboard/›.

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Children of the Screen
Teaching Spanish with Commentpress

Sol B. Gaitán

The advances of technology in the digital age have permeated every area of society, from interpersonal communication to the way information is disseminated. Today's children are able to manipulate sophisticated software, search the Internet, play games, and download information without being aware of the cognitive process involved. For instance, most children download and listen to music on the Internet, and in the very near future, they will not have a notion of what a CD is. As a teacher of children and adolescents, I firmly believe I have the moral obligation to prepare them for the world they will be part of as adults. I have been using technology in the classroom since 1993, and have witnessed rapid changes in students' attitudes towards technology and their almost intuitive use of it. My adult peers, on the other hand, still tend to regard technology as a useful intruder that permits instant communication: a tool for shopping for books, airline tickets, and perhaps tickets, or an instant way to check the news, read periodicals, or get directions. Blogs, Wikis, and other networked applications are usually the realm of those who grew-up in the last decades.

As educators of today, we must overcome any fears of technology because it is here to stay. More than thirty years have passed since Nam June Paik coined the terms "Electronic Super Highway" and "the future is now." However, as a product

of the industrial era, our educational system continues to impose schedules and, as a result, segment time as if students are still bound for the assembly line, yet we live and teach in a very different moment. A moment we should embrace with the knowledge that it is in constant flux. As Sebastian Mary, a young British writer puts it, "many of us live now in a networked, post-industrial era, where many of the things that seemed so certain to a Dickens or Trollope no longer seem as reliable. And, perhaps fittingly, we have a new delivery mechanism for content. But unlike the book, which is bounded, fixed, authored, the Web is boundless, mutable, multi-authored and deeply unreliable." This is precisely what I find so exciting about using technology. In 1993, I used Hypermedia Navigator, which relied heavily on Hypercard and the notion of hyperlinks, references to other text and media that can be accessed by a mouse click. It was a painful, long process of digitizing text, music and images and turning them into hypercards, in a world where searching/research tools did not exist. The final product was an electronic adaptation of Federico García Lorca's *Poema del cante jondo*. Later I "transferred" this book toTK3, a new authoring/reading environment created by Night Kitchen, which allowed me to re-create *Poema del cante jondo* without any programming, and with the addition of rich media. As technology continued to advance, in 2008, I used Sophie, a new multimedia authoring program created by The Institute for the Future of the Book to bring my edition of *Poema del cante jondo* to the present. Sophie included time-based events, and offered the possibility of bringing social networking into the book. The experiment was not completely satisfactory with respect to interaction among my students, but the new version of the book is beautiful and inspiring, and much better that the two previous ones. My goal with this book has been to introduce my students to one of the most beautiful poetry collections regarding the world of music in relation to the people who produced it. Thanks to Sophie, my students are able to explore the direct influence of the different music styles that comprise *cante jondo* on García Lorca's poetry, and they have the tools to annotate several sections of the book. Most of this work takes place inside the classroom, with students working at their own pace, with my guidance when necessary.

The social networking aspect of "the book as a place" as Bob Stein, the mind behind all these experiments, puts it, has not been very satisfactory however because Sophie is still in formation. Sophie's history is long and complicated. Its roots are in the CD-ROM era, when the Voyager Company sought to develop an authoring tool which would enable artists, authors and designers to assemble complex, multi-layered, multi-modal documents on their own, free of the need for programmers. The first version, known as TK3, never came to market because of a dispute with Microsoft, an early investor, who insisted that the Macintosh version be discontinued.

Sophie was commissioned by the Mellon Foundation as part of its Digital Infrastructure initiative. The goal was to provide professors and students with a rich media authoring environment. The work was carried out under the direction of the Institute for the Future of the Book, which at the time was based at the University of Southern California. At the same time that the Institute was working on Sophie, the group carried out a number of experiments under the rubric "networked books" exploring various mechanisms to enable conversation in the margins of a text. Due in large part to the success of these experiments, the concept of Sophie was expanded to include a robust social component.

Unfortunately, the team developing Sophie 1.0 was not able to complete the project, primarily because of poor project management. Although the team had made some spectacular progress, The Mellon Foundation decided that rather than continue funding the original effort, being developed in Smalltalk, they would fund a virtually new team to create Sophie 2.0 from scratch, in Java. This team, based in Sofia has done some brilliant work, but they are likely a year and a million dollars short of a product.

Missing the promise that Sophie's social component offered, I adopted Commentpress as a complementary tool. I use Sophie and Commentpress as research and publishing tools, and also as extensions of the classroom.

Commentpress is an open-source theme for the WordPress blogging engine that allows readers to comment paragraph by paragraph in the margins of a text, turning a document into a conversation. Commentpress is different from blogs or e-books because it provides a dynamic reading environment, where a piece of text can be annotated, as marginalia, or can be commented on by its readers by means of notes next to the text. Blogs support linear conversation, but Commentpress lets readers pull out multiple strands of text to start their own discussions. This can be applied to a fixed document (paper/essay/book etc.) or to a running blog. I have used it with fixed documents. Commentpress was originally developed by Eddie Tejeda at the *Institute for the Future of the Book*.[1]

For my Hispanic Literature course, I have written assignments on many Spanish and Latin American authors using Commentpress. One of them is on Gabriel García Márquez's collection of short stories *Los funerales de la Mamá Grande* and his novella *El coronel no tiene quién le escriba*. We used both printed books and Commentpress. I wrote an essay using primary and secondary sources to illustrate how the history of Colombia is seminal to García Márquez's development as an author. I asked the class to comment on the assignment based on what they learned after reading his collection of short stories *Los funerales de la Mamá Grande*. I also added a section of guiding questions, and a section with excerpts from that collection. My expectation was that the students would comment on my text, but instead they went to the guiding questions and commented there. I believe they felt more comfortable with a familiar format.

After the class read *El coronel no tiene quien le escriba,* I asked them to enter comments on my essay as the culmination of the assignment. My rational behind this is that students only fully grasp what I tell them if I present an author after they have read his/her works and not the other way around. Commentpress allowed me to evaluate their work within the context of their whole experience as they developed knowledge and understanding, something that a final paper does not necessarily do. Furthermore, the posting of comments regularly helped students to know where they stood regarding assessment, because I used their posts in lieu of in-class essays. This rendered the evaluation process transparent since students were in intimate contact not only with their individual progress, but also with that of the whole class.

I valued enormously the fact that Commentpress allowed the classroom to be extended beyond its physical confines. Because class discussions are central to Dalton's philosophy, students are quite accustomed to participating in class. One student argued that she already shared her thoughts in class and that she preferred to work on a paper in the privacy of her home than on a blog. Her argument was disputed by those students who saw great learning advantages in their ability to ponder the works of an author while they were reading at home, having the chance to share their ideas with their classmates, and with me, then and there.

One of my arguments with those students who expressed some uneasiness using a networked assignment was that we were using their favorite tool for communication. They all agreed that e-mail, social networking and text messaging are the way they connect. Why, then, did they object to having this applied to their learning experience? They felt that an academic blog demands a more "serious" approach and a certain degree of formality, and they also felt that they MUST comment. We decided that they should be less formal and that they should enter a minimum of two comments a week. Since they were writing in Spanish, they also had to enter grammar corrections whenever I asked them to edit their use of the target language.

Here are some students' reactions:

When I finally became accustomed to the blog, I realized that it is in fact a very useful and helpful tool. It allowed us to continue discussions that would have otherwise died out when the bell rang, and helped us reach a deeper level of understanding of the finer details of the stories and books we read.

At first, using the blog felt slightly forced, simply because it was unfamiliar, and therefore, all of our initial comments seemed slightly too formal and didn't utilize the purpose of the blog—communication. As we got more accustomed to writing shorter posts more frequently, I ended up really enjoying the blog because it allowed the type of communication that goes on in class, natural, analytical, but not as formal as an expository piece of writing. Despite its informality, the blog gave us time to really sink our teeth into the text and produce well thought-out comments that we perhaps wouldn't come up with automatically when sitting in class.

I really enjoyed the blog because it permitted a development in my thoughts about the literature we read; as time went on, my ideas changed, and each post didn't aim to prove a central thesis, which normally it would have if we had been assigned one take-home essay. My favorite part of the blog was reading what my classmates had to say. When writing a paper, one often ends up narrowing their perspective because they are focused on only one thing, or one area of the body of work

I liked the blog a lot. I felt it added to the discussion that we had in class. We could not only build off the themes we talked about in class on the blog and explore areas we particularly found interesting but also talk about what we had written on the blog in class. Writing a couple of times each week kept me up to date on the books we were reading and the ideas we discussed. Similarly, as we could all see each other's work, it offered different perspectives on certain topics and allowed for debate.

First, even though it is something new and unusual right now, with new technology, education is changing to allow us to gain so much more information in faster ways. I think

the blog allows us to use technology to get the most out of our work. Also, different from an essay or test, on the blog there is not really a way to cram because we write a little at a time; our work becomes a lot more about quality too. With the blog we can add to our own ideas or to the ideas of others, and it allows us to hold a conversation that is deeper than in-class discussion because there are no time restraints. It gives us a chance to process our ideas and think about what we want to say before saying it.

I thought the blog worked wonderfully. First, it was, I thought, nice to be able to explore a number of different themes in our writing, rather than have an essay entirely structured around one thesis. It also worked as a means of continuing discussion outside of class; an essay is just between the teacher and student, while this allowed for the whole class to engage in dialogue. In class discussion, students are less accountable for what they say; they don't always have to back it up or face being challenged. The blog thus allowed a more formal form of debate with increased accountability while still maintaining some degree of informality or, at least, a conversational feel.

Commentpress added work to my daily workload because I had to check students' comments often, send them grammar corrections, and add my own comments when clarification was needed. However, I was able to feel the pulse of the class more closely and accurately, and I didn't have a ton of papers or exams to grade at the end of the assignment.

When we study Spanish poet and playwright Federico García Lorca, we start by reading his theater, using a traditional paper assignment and printed books, but for his poetry we use my electronic book built in Sophie. My feeling is that this allows the class to have the opportunity to delve into the culture of Andalusia from its origins in antiquity to its musical expression in *cante jondo*. I have been working with TK3 and Sophie because they allowed me to assemble multi-layered multi-modal documents books that addressed the needs to present Spanish literature, specifically, Federico García Lorca's *Poema del cante jondo,* to readers unfamiliar with *cante jondo*. Most readers, including Spanish-speakers, are not experts in this old musical form, and creating an electronic version was absolutely seductive and pertinent.

Poema del cante jondo is a book that represents both the need for a lasting vehicle for a vital element of Andalusian culture that was on the verge of disappearing when García Lorca wrote it, and Lorca's attempt to make Spaniards aware of their multicultural roots. The musicians producing *cante jondo* were dark-skinned, free-spirited people living in the midst of a racist, petrified culture, who were forced to stay within their own cultural boundaries. Their travails made them masters of the expression of the depths of their unique soul. *Poema del cante jondo* is the closest to that singing and to that depth a book can be. It is a conscious gesture on García Lorca's part to give permanence to the evanescent. *Poema del cante jondo* is a book that demands to be music, visual imagery, poetry and song: it is art. That is the reason I have been moving it from software to software, and my reason for trying to keep it connected to the future. Sophie, once it became stable, allowed me to create a better book. Perhaps, because of my use of TK3, I can appreciate what Sophie does better. I am quite happy using this Sophie book as the book it is. I am also trying to make sense of its rich media contents as a key element for understanding and annotating it. Technology is feeding critical discourse; it is not just ancillary to the reading and interpretation of the book. It is how the book exists. It has been a wonderful experience to see students absolutely involved in García Lorca's works and sharing their interpretation of his extraordinary poetry with the class.

At the end of the year, my literature class becomes highly individualized because students embark on their final project: a Sophie book on any Spanish and/or Latin American author of their choice. This allows for the implementation of the best the Dalton Plan has to offer since each student has the freedom to choose the subject of their research, and the luxury to devote class time to work. Once a week, students present the product of their work to the class so they learn from each other while I act as a facilitator, threading the different projects by comparing and contrasting authors, literary movements, styles, and so forth. It is an exciting time for all.

As a teacher, notwithstanding the time involved, and the ways I have devised to adapt and adopt technology in my classes, the satisfaction of seeing students blossoming with the benefits of rich media assignments is worth all the effort I put into creating them. Understanding that computers are not a substitute for books, as smartboards are not a substitute for blackboards, has made a world of difference for me. The realization that they are tools that serve very different purposes has come to me over the course of many years of using technology in, and outside, the classroom. I will never replace pencil and paper with a computer, but I will always take advantage of what technology has to offer that cannot be replicated by other means. With that in mind, I have created multiple e-assignments at Dalton, from Spanish I in the middle school to e-books produced by my Hispanic Literature students in the high

school. Technology does not substitute for my teaching, but it enhances it. My students not only use my assignments presented in Sophie or Commentpress form, but are also actively involved in the production of their own. For seniors taking Hispanic Literature class during their second semester, this has proven to be an inspiring and highly productive exercise. The fact that they write e-books on authors of their choice makes them highly motivated, and the fact that their books become an electronic publication is the icing on the cake.

Over the years, my students have created beautiful TK3 and Sophie books at the end of their Spanish career at Dalton. At this point, however, I can no longer offer them that alternative. This is one more example of the potential frustrations of teaching with technology that promises but does not deliver, but it will not stop me from continuing to try.

[1] See ‹http://www.futureofthebook.org/›.

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Facebook as a Functional Tool & Critical Resource

Mark Lipton

Students are not friends. Teaching is not a popularity contest. No matter what philosophy of teaching or approach to schooling, there is little disagreement about a necessary distance between instructors and their students. We are not equal.

Yet, despite much controversy, I have taken up Facebook as a digital tool in my large lecture halls for a variety of reasons and used a number of pedagogical approaches. I challenge myself to consider the social media world from the point of view of today's students. Consider how the average eight to 18 year-old spends almost seven and a half hours each day with media (Rideout, Foehr and Roberts). As these young people enter university and are searching through the course catalogue, many of them select my introductory elective course in Media Studies, a lecture with an increasing enrollment often with over 200 students. In the last five years, I've noticed many of these students enter the classroom with a laptop or some portable device giving them instant access to the university's incredibly powerful Wi-Fi signal. The lecture hall itself is considered a "smart classroom" providing student access to power for plugging in and instructors access to an elegant podium equipped with a number to ways to connect devices for projection onto the theatre-size screens overhead. It is the context of the smart classroom and the increasing laptop use

that led me to employ Facebook as a digital tool in my lecture hall. The aims of this short essay are to identify my motivations for using Facebook, describe methods and practices of this classroom use as a functional tool and critical resource, then to discuss current pedagogical challenges.

Why Facebook?

The Chronicle of Higher Education reported in May 2010 that approximately 80% of today's professors use social media. The survey of *Social Media in Higher Education* (Tinti-Kane, Seaman and Levy) optimistically concluded "while some faculty remain skeptical, the overall opinion is quite positive, with faculty reporting that social media has value for teaching by over a four to one margin." However, these numbers do not necessarily translate into innovative curricula or pedagogy. As assessed in the *Chronicle,* approximately ten percent of survey responses "represent active uses of social media tools, meaning professors expecting students to post or comment on or create something " in contrast to faculty who use social media as an information resource or what this report referred to as "*passive* activities like reading or watching a video" (Perry). I've noticed a similar divide about digital media use among the faculty on my campus. Many of my peers use today's tools but not in their classrooms; some teach with the tools but (often) primarily as a resource for information. Some embrace the world of digital media yet others dig in their heels, particularly taking a hard line against laptops in the lecture hall. As class sizes increase, those faculty teaching large lectures are particularly challenged to address the sea of hundreds of students all staring into their own laptop screen. The blue haze of Facebook reflected in students' faces is usually considered a distraction from the sage on the stage, not an educational opportunity, driving many professors to ask students to "close their laptops." In fact, there is a lengthy and ongoing debate about the use of Facebook by faculty on university campuses. As reported by John Bowman, "some teachers and lecturers are embracing Facebook and Twitter as new ways of communicating with students, and some universities and school boards are banning access to social networking tools entirely, citing security concerns." For many faculty, the ban is supported because using commercial products can lead to distraction.

Research has started to frame debates about distractions versus multitasking within sociological and neurological contexts. My students often insist that a multitasking-learning environment will best serve their purposes. Former Apple and Microsoft executive Linda Stone coined the phrase "continuous partial attention" to describe students who "are scanning all available data sources for the optimum inputs" (Rainie). Crudely put, Stone's approach describes a cognitive strategy that is always on, in a variety of digital media networks. Stone introduces different cognitive motivations and effects to the concept of multitasking and I apply these within learning contexts. Eyal Ophir, Clifford Nass and Anthony Wagner conducted a series of experiments about student media multitaskers and their information processing styles. Empirical results demonstrated how "heavy media multitaskers are more susceptible to interference from irrelevant environmental stimuli and from irrelevant representations in memory. This led to the surprising result that heavy media multitaskers performed worse on a test of task-switching ability, likely due to reduced ability to filter out interference from the irrelevant task set" (15583). For Rainie, of the Pew Internet & American Life Project, students who "operate in such a state are not as productive as those who stay on task. They also do not make distinctions between the zones of work and leisure, consumer and producer, education and entertainment." S. Craig Watkins describes this phenomenon as one of the more intriguing paradoxes of today's digital media environments: "we consume more and less at the same time" (159).

Facebook as Functional Tool & Critical Resource

It is within this context that my interest in using Facebook as a mode of critical inquiry was sparked. In other words, my teaching with Facebook is an effort to constrain students' multitasking behavior by providing instruction as to when and how to use the site. My curriculum continually changes as the site itself evolves; my pedagogy relies on various investigative strategies that allow me to adapt to the changing nature of social media. For Media Studies faculty, it is important to teach both *about* and *through* digital tools. Teaching about Facebook includes contextual information about its social, cultural, and historical dimensions; teaching through Facebook includes the praxis of using this tool (along with or in conjunction with others) to both process and distribute information. Kirsten Drotner reframes this discourse about digital media pedagogy by asking whether digital or multimodal literacy should be "defined as a functional tool or as a critical resource?" (182). Simply put, my answer is: both.

Teaching with Facebook is a way for me to engage my students, since many of them will be on the site before, after, and during any lecture. More than engagement, using Facebook allows me to build a bridge between my classroom curricula and what my students are doing outside the lecture hall. I must

admit that student expertise with digital media often exceeds my own, and my attempts at using Facebook function as a common language that sets up my classroom as an experimental space allowing students to take risks, make connections, and participate with an alternative teaching style. As much as there are a number of other Facebook educators—there is even a Facebook groups for educators—I am certain that on my university campus I am the only instructor using this social network. My university administration has accused me of subverting our institutional course management system. They are correct. Facebook may be a commercial enterprise, but I argue that students can maintain a Facebook identity after they leave university. The work done in our lecture as represented in our Facebook group is something that lasts beyond a typical university course management system. In other words, access to the information, discussion, links, and learning is not cut off once the course is over.

Thinking about Facebook as a classroom management system is an example of how I use it as a *functional tool.* Similarly, I also demonstrate, manage, and model an online identity for students, reinforcing what I call "responsible" Facebook use. The functionality of Facebook also works as a tool for class participation and digital portfolios. These are some of the important ways that I teach through Facebook.

At the same time, I believe it is also important to teach students about Facebook. Typical of a first year Media Studies survey course, my curriculum included material such as the changing role of technology, the implications of media ownership, and the relationships among policy, law, and media institutions. When I began to teach about Facebook, I was able to use this digital media as an example to discuss such related issues as the nature of social hierarchies and networks; the politics of privacy; the changing nature of net neutrality; cloud computing; copyright and creative commons; politics of media ownership; and others. Facebook can function as the yardstick from which other examples are measured and the touchstone from which other elements of my curricula are judged.

Watkins points to the Pew Internet & American Life Project and their attention to the year 2006—the same year I took up Facebook in the lecture hall. He writes, "2006 was the tipping point for high-speed Internet connections, turning what Pew, two years earlier, called the *broadband elite* into the broadband masses. Furthermore, 2006 was the year that three of the most celebrated Web 2.0 brands—MySpace, Facebook, and YouTube—established a formidable presence in American popular culture. Inspired by the popular explosion of new web brands and the commercial potential of what Net-entrepreneurs cleverly began marketing as Web 2.0, *Time* magazine named user-generated media its "Person of the Year" (210). In 2006, I began believing it was important to consider my students as members of the broadband masses and to speak to them through and about digital media in meaningful ways. My curriculum and pedagogy has me teaching with and about a number of digital tools—not just Facebook. But now, to make my Facebook use more explicit, I turn my attention to a specific example of how I start one of my Facebook lectures.

A Day in the Life

I begin my course by framing the study of media and communication theory within two historical contexts or schools: a semiotic school with a focus on the production and exchange of meanings; and a process school that focuses on the transmission of messages. Promising to address both throughout the semester, I begin with attention to the latter by providing history about Shannon and Weaver's "Mathematical Theory of Communications." Developed during WWII for Bell Telephone, this theory approached the problem of how to send a maximum amount of information along a given channel, and how to measure the capacity of any one channel to carry information. Implications of this theory, for example, concerning how senders and receivers encode and decode information or how transmitters use the channels and media of communication are applicable to larger questions of human communication systems.

To demonstrate the implications of efficiency, predictability, accuracy, and entropy, I ask students to play a game. They have all played it before—though never in a large lecture hall. The game is "broken telephone." The lecture hall is divided in half by a centre aisle. I tell the class that this "game" is a competition and they need to be a team player: team left or team right. I walk to one back corner of the hall and whisper a sentence into the ear of the student sitting in the last row. Then I whisper the same sentence into the ear of the student sitting in the other back corner. These students explicitly know that their job is to pass the message to their neighbors. When the message gets to the last student, he or she writes the final sentence on the interactive white board. Of course, during this "game" my lecture does not stop. I return to my discussion about information theory and how the model can describe a process of one person affecting the behavior or state of mind of another; the

role of redundancy as the tool for combating entropy in message transmission; and the properties of codes and channels. At the end of the game, it is clear that entropy has entered the game and the original sentence and its meaning are completely lost—by both teams. The final sentences, however, have provided us with some humor and are the departure point for setting up our class Facebook group.

At this point during class, one of my teaching assistants takes control of the podium and begins to set up a Facebook group. The results from our game of broken telephone—the two awkward, meaningless sentences—are discussed and then voted on as possible group names. For example, the sentence "Mark Lipton lives in Toronto with his dog Bingo" whispered by 100 students led to the phrase "Harry has some berries." We had arrived at a name that we could all remember. My class groups are usually open because I insist on an approach to media learning that is open, social, and connected. However, for many teachers, a closed group will make more sense, provide more privacy, and will require students to request to join and/or see the group. Before I proceed with this group I need to spend a bit of time discussing some of our rules of engagement.

Once the group is set up, students are verbally invited to join. Our Facebook group is not mandatory. There is no grade for a student's Facebook use or participation. Students often become motivated to use it as a tool through which they can participate. In other words, students understand that throughout each lecture, one of the teaching assistants is monitoring the group wall and discussion lists. During class, when a student has a question, idea, related link or resource, he or she can post to the wall and the assistant responds, raises the issues with me, and/or brings it to the attention of the class as a whole.

The Facebook group wall is projected on the screen at regular intervals throughout any given lecture. I refer to the page, point to the screen, post links, and click through posted links during lecture. When a student has posted something significant to the wall I often invite him or her to address the class; Facebook is a way to constrain and contain class discussion. Like other classroom management systems, Facebook allows me to follow threads on discussion boards and post announcements. I often look to the group page, wall, and discussion list during my class preparations for links, ideas, and connections. I try to respond to posted items at the beginning of each lecture so that everyone who has participated feels heard. Students are asked

to reflect on this Facebook use at the end of the year. Many of them claim my uses to be "interesting" or "innovative." From my point of view, what is of major significance is the quantity and quality of student communication posted on the wall. When students are given free reign without the stress of assessment, I notice what they find important, where I need to explicate, and when I should stop to give them voice to articulate their concerns. Some students never leave the group, using it to stay connected to classmates; others drop it as soon as the course ends.

I must take a moment here to say a word or two about student resistance to Facebook. There are always a few students who argue that Facebook "belongs to them," how I "ruin" their Facebook, and/or that my teaching practice is like a day at the arcade. It is clear these students want Facebook to remain nonacademic. My response to students is consistent and rational: there is no penalty for resistance. In my last experience having a Facebook group, there were three students who were not members of Facebook. Of note, I think, is that these students were politically motivated to resist Facebook, passionate about the subject of Media Studies, often older (not first year) students, and usually had stronger written and oral communication skills than their class peers. Thus, when I requested they look on to their neighbors' laptop if they wanted to post something to the group, I met with little resistance. Projecting the Facebook wall during the lecture proved a powerful tool to moderate discussion, share announcements, and follow student thinking; because I could point to the projected Facebook page and discuss its contents, I provided an opportunity for every student to see how other members of the class were using it as a digital tool, to model behavior, and reward leadership. Ergo, even if a student chose not to participate with the group, he or she could still somewhat benefit from Facebook as the classroom management system.

These are some of the ways I try to explain my *intention* for setting up a Facebook group. I also am trying to focus student attention—if they are going to be on Facebook, at least let them be using it for class, and let them be using it responsibly. At this point, I ask students about their Facebook privacy settings and their understanding of privacy on the Internet in general. I give a few examples that I hope make explicit the importance of this subject. One that students respond to is the story of how Facebook is used by prosecuting attorneys to search for character evidence, and its corresponding penal consequences. The story of Joshua Lipton (no relation) has stayed with me. Two weeks after a DWI incident that seriously injured a woman, this 20-year-old

university student attended a Halloween party dressed in a black-and-white striped shirt and an orange jumpsuit. He was tagged on Facebook with the label "Jail Bird." The prosecutor handling the case displayed the picture during the trial. The judge called the pictures "depraved" and ordered a two-year prison sentence (Tucker). Before my students begin looking at their own Facebook pictures, I ask them all to count into groups of ten. Each group must leave the room for twenty minutes and discuss Facebook privacy. They are instructed to post to the Facebook discussion page the top ten ways to maintain privacy on Facebook. When they return to the lecture hall, I examine their lists by pulling up the discussion page and reviewing their language. But we do more than talk about privacy. This opportunity allows me to introduce other theoretical concepts while I demonstrate how to use the various settings. In other words, I share with students how I manage my Facebook *identity*.

By identity I mean to introduce a point of view and a theory about the relationship between the self and society. Our class discussion about online identity, I argue, supports the point of view that humans do not have a single self which acts in a variety of ways or different roles. Rather, this discussion of Facebook is my foray into a sociological and semiological perspective that describes how human identity is the result of a transaction between the self and a communication environment. Here I consider Facebook as a critical resource by pointing to my own uses of this social networking site to describe elements of this theory: i.e., that humans are a social species; we must live in groups; people's behavior can be understood as a result of their relations with others; we don't have one single true self; we have a variety of selves that are evoked by our relations with others; who you are—your identity—at any given time is a function of the relationship or situation that you're in. For example, Angela Thomas' discussions about, "the semiotics of online identity" (6) as "a major area of Internet research" (17) are made concrete through personal narratives and descriptions of Facebook practices. My social uses of Facebook help me maintain old friendships, find lost connections, build new networks and grow the "groups" in which I choose to live. Most people understand my Facebook behavior based on their past and current uses of this and other social networking sites. For some "friends," I "over post" status updates using codes (usually Twitter hashtags) they do not understand. For other "friends," I provide status updates during professional conferences as a form of live microblogging and this tool works to build resources and make connections. And finally, I think I have another group of "friends" who appreciate what I am doing even if they don't follow every update or link. My argument is that with each group of "friends" I have a unique identity. Since these identities are evoked through my uses of Facebook, it is important for me to manage my identity by understanding Facebook's functionality.

This leads to a lesson about what I've begun to term Facebook "literacy." In order to use Facebook—and not be used by it—one needs to understand how to operate its settings and options. Furthermore, this lesson provides the framework for making the rules of engagement between my students and me explicit. To begin, I have my own Facebook page open and I show students where to find the site's privacy settings and how I use them. I also demonstrate and model how to operate the site's (ever-changing) options for managing my online identity by editing friends, pages, and account information. These are the basic skills that one must know if they are going to use Facebook with the greatest efficiency, so there are no semantic, technical, or effectiveness problems.

As I reflect on this teaching practice I am struck by some pedagogical challenges. Here I share some lessons learned: I will not "friend" my students. However, I am more than happy to accept a student "friend request" and I make explicit that any student/"friends" are added to a list that I use to block them from some of my more personal Facebook information, such as my photo albums. I try to ensure that students do not come up in my news feed and I suggest that students block me from their news feed. I ask students to tag me if they want my attention—but if I feel like they are demanding too much attention, I will let them know. Thus far, this has never continued to the point where I had to block a student altogether. I prefer to keep my communication with students as public as possible. Thus, I will not Facebook chat with students because it cannot be saved. Rather than fear any inaccurate recollections or negative accusations, I ask students to post to the group wall so that everyone can participate in the discussion. Our group page is not the place for complaining, whining, or unsupported criticism. I continually remind students that our Facebook group—and increasingly my Facebook use as a whole, is intended to provide students with leadership opportunities and confidence.

When I consider Facebook or any digital learning tool within the context of equity, I am reminded, as Darin Barney notes, "for some people access to the Internet is a source of empowerment, autonomy, and agency, [but] for many it simply means connection to a technological infrastructure in

relation to which they remain significantly disadvantaged and powerless" (155–156). Teaching about and through Facebook demonstrates a method for creating a learning context that invites students to increase knowledge and critical thinking while building a love of learning based on connectivity, engagement, creativity, curiosity, and collaboration.

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Beyond Friending
BuddyPress and the Social, Networked, Open-Source Classroom

Matthew K. Gold

In the spring of 2007, I asked students in the "Introduction to English Studies" course that I was teaching at Temple University to use blogs to discuss the novels we were reading for class. During a unit on Ralph Ellison's *Invisible Man,* one of my students wrote a post titled "Chaos and Imagination"[1] that speculated upon the autobiographical roots of Ellison's text (Cummings). Soon after the post was published, a comment appeared from an unexpected contributor: a producer from *Radio Open Source,*[2] Chris Lydon's nationally syndicated public radio show, asked my student to contribute a question to Lydon's upcoming interview with Stanford professor Arnold Rampersad, who had recently published a biography of Ellison.[3] On the *Radio Open Source* blog,[4] the producer linked to and quoted from my student's post, adding her work to a list of "extra credit" readings that also included texts by Saul Bellow, *New York Sun* book reviewer Adam Kirsch, and Ellison himself.

My student was delighted and flattered by the attention her blog post had received; it gave her confidence in her writing and bolstered her enthusiasm for our class. I was nearly as happy with the news, since the episode confirmed my suspicion that bringing my classes onto the Web in an open, public way would be beneficial and edifying for my students. Since I had been unaware of Rampersad's biography, the editor's comment both brought the text into

our classroom and reframed our discussions. We were no longer studying an important work of twentieth-century literature within the narrow context of my syllabus; instead, we had become part of a conversation that involved the broader reading public. As the professor, I was displaced from the center of that conversation, which became more open, distributed and student-driven than it had been before.

This moment has informed my approach to teaching and learning ever since because it demonstrated so powerfully the kinds of connections made possible by open learning environments. In almost every class I have taught afterwards, I have not just asked students to blog, but to do so within a network of connected blogs so that their posts could be in dialogue with one another and with the public. These networks have consisted, at times, of multiple blogs hosted in a single space. At other times, students have created blogs on hosted servers that were then brought together in a single, centralized location through RSS aggregation.

WordPress, an open-source blogging platform, has been my blogging tool of choice since I first used it in 2004, primarily for its ease of use, its extensibility, its flexibility, its attractive theming options, and its active communities of developers and users. WordPress itself can now be installed as either a single, stand-alone blog or as a "multisite"[5] network, which means that multiple blogs can be created from one installation.[6]

In 2009, developers released BuddyPress,[7] a series of plug-ins that promised to add "social networking in a box" to WordPress multisite installations. In practice, this meant that in addition to creating blogs, site members could create profile pages, add friends, write status updates, post notes on one another's profile pages, send private messages, create groups, use discussion forums, and track member activity across the installation. If WordPress created a network of connected blogs, BuddyPress created a social ecosystem around that network.

In an online learning environment, BuddyPress lowers the barriers to student engagement. Whereas writing long posts or comments are the primary means of interaction in a blog-based site, BuddyPress creates opportunities for interaction that offer the prospect of low-stakes engagement, which we might consider an updated, networked form of the kind of "low-stakes writing"[8] long championed by composition instructors (Elbow). Students may visit the course site because they receive a friend request from a fellow student, and in visiting the site, they may quickly respond to a status update, contribute a link to a group, respond to a forum post, send a private message, or update their own status. Taken in aggregate form, all of these informal interactions with fellow class members help create a richer, more social learning environment than a site that uses blogs alone.

BuddyPress adds several new features to networked learning environments that can be used in creative ways:

Activity Streams: BuddyPress tracks many site activities through an RSS stream. As members of the site create blog posts, join groups, or add friends, these events are displayed on their profile pages and on a site-wide feed. Similarly, groups have activity streams that display recent forum posts, documents uploaded, and news of the creation of new member accounts, all of which can be used to keep track of site-related events. Privacy issues related to these activity streams are mediated by various privacy controls (e.g., activity in private groups is visible only to members of those groups).

Member Profiles: Upon joining a BuddyPress-enabled site, new members set up a profile page on which they can include an avatar and a listing of salient links and interests. These profile fields can be customized to reflect the subject matter of the class. In a writing course that I taught in Fall 2010 to architecture majors, I asked students to list their favorite architects and buildings. I set up these expanded profile fields in front of my students during a class session, which allowed me to ask them what kinds of information they wanted to know about one another. Free plug-ins, such as Custom Profile Filters,[9] make it possible for members of a network to find others who share their interests, thus creating an organic, user-driven, serendipitous system of connection.

Groups: Groups are the primary engine for collaborative work in a BuddyPress site; three privacy settings offer varying levels of visibility.[10] A number of plug-ins make it possible to extend the functionality of groups. When enabled, discussion forums allow groups to hold and archive conversations around topics and threads. A group documents plug-in creates a way for group members to upload documents; the document page, which lists and sorts all group documents, can then serve as a repository for group-related publications. Groups can be associated with a blog on the same WordPress installation using the BuddyPress Groupblog plug-in;[1] this allows for the creation of private spaces for group discussion and a more open group blog that can be used to communicate with the wider public. Groups can also be paired with the BuddyPress ScholarPress Courseware

plug-in[1] that, while still at an early stage of development as of this writing, creates spaces within groups for the uploading of assignments, the submission of papers, and the assigning of grades.

Why Not Use Facebook?

In attempting to create "social networking in a box," BuddyPress has mimicked functionalities that are part of popular social networking sites such as Facebook. Academic institutions have begun to set up presences inside websites like Facebook in an attempt to "meet students where they are." While most schools have simply set up informational pages on Facebook for their students, Purdue University recently unveiled Mixable,[11] an application that creates a digital learning environment inside Facebook (Kolowich).

So, why use a platform like BuddyPress, which, though free to download, requires an investment of time to configure and customize? Why shouldn't educators simply use the social-networking spaces in which students have already converged, so that they might become part of the already-active "lifestream" of those students?

Here are some reasons why BuddyPress offers a more attractive option than Facebook or commercial sites like it:

Proprietary vs. Open-Source

As an open-source platform, BuddyPress and WordPress are tools that can be reshaped by their participants to meet the needs of particular learners or classes. Because the code underlying these tools is freely available, both students and teachers can take part in the constructive and collaborative process of building new features for the very platform upon which their community is built. This type of refashioning of the virtual learning space reflects what Christopher Kelty has called "recursive publics:" "publics concerned with the ability to build, control, modify, and maintain the infrastructure that allows them to come into being in the first place and which, in turn, constitutes their everyday practical commitments and the identities of the participants as creative and autonomous individuals" (Kelty 7). In a course that centers on code or on social media, such modifications to the infrastructure of the platform could take the form of actual tool-building and code-writing. In less technology-oriented classes, students might simply request that certain plug-ins and themes be installed that can extend the capabilities of the platform.

In a proprietary setting such as Blackboard, of course, such modifications to the core platform are acted upon only at the discretion and according to the timetable of the for-profit platform owner.

Data Ownership, Data Portability, and Free Labor

In an article about Mixable published in *Inside Higher Education,* Kyle Bowen, the Director of Informatics at Purdue University, is quoted as saying that on Mixable "the conversation is owned by the student" (Kolowich). This is patently untrue, as conversations that take place on Facebook are owned by Facebook,[12] a private company whose shares are not traded openly on the stock exchange as of this writing.[13] Student data posted on Facebook is not portable: the only way to remove personal data from Facebook is to delete it. And even then, the data persists in Facebook's servers for some time ("Statement").[14]

More troubling, however, is the fact that when classes or other university activities take place on Facebook, material posted on that platform helps build equity for Facebook by increasing advertising revenue; Facebook can sell the activities of its users to prospective advertisers who hope to reach these valuable audiences. Trebor Scholz has called attention to "the immaterial creative/affective labor performed in the sociable Web," in which *"networked sociality is the product"* (Scholz). When educational activities take place on proprietary sites such as Facebook, educators become complicit in a profit-making process in which teaching and learning activities are commoditized and sold by a third-party vendor to third-party buyers.

When a university or a single educator installs BuddyPress and WordPress, by contrast, students have the opportunity to participate in the open and generative community of developers and users that attend to these platforms. They can assume more meaningful control over their own data, export that data as desired, and release it to the public under a range of licenses, including Creative Commons licenses. Such open-source learning environments are generally devoid of advertising, thus reducing the extent to which students and their work are commodified within (and by) the online classroom.

Separation of the Lifestream

While "meeting students where they are" might seem attractive to harried educators hoping to capture the attention of busy students, efforts to build educational spaces within popular social-networking platforms risk undesirable interactions between personal and professional lives. The educational

technologist Jared Stein has described such social institutional spaces as "creepy treehouses" that may be seen by students as an "infringement on the sanctity of their peer groups, or as having the potential for institutional violations of their privacy, liberty, ownership, or creativity" (Stein). Consider the ramifications of a friend request sent by a professor to a student on Facebook; the student might not want to be "friends" with an educator in a space in which his peers might post embarrassing photos or status updates, but he might reasonably worry whether rejected the friendship request could hurt his grade.[15]

Creating social academic spaces through tools like BuddyPress, by contrast, allows teachers and students to participate in subject- or class-specific social networks structured around their educational experiences. They can make course sites more dynamic, social, and interesting without compromising member privacy or creating situations that mesh personal and educational networks. They offer, in other words, a separation of the lifestream in a way that lowers the stakes of social-networking. A professor can feel free to make a friend request of a student on a BuddyPress course site without worrying that the request will intrude on the student's personal life. Such no-stakes social networking can help build goodwill in a course.

BuddyPress Community Sites

Though BuddyPress can alter the dynamics of a single course, its power can be seen most clearly in large-scale installations of WordPress MultiSite, where it can affect the dynamics of entire educational communities. As the founding Project Director of the CUNY Academic Commons,[16] an academic social network that fosters collaboration among the 23 campuses of the City University of New York system, I have used BuddyPress with my colleagues to bring together members of a single university system who have mutual, but often previously undiscovered, interests. Established in 2009, when BuddyPress was still in beta, the site has fostered a number of emergent interests; among the groups that have quickly formed and gained momentum include those devoted to Open-Access Publishing, the Digital Humanities, ePortfolios, and Gaming Research. Entire departments, such as the English Department at the College of Staten Island, have begun to use the group functionality that BuddyPress provides as a primary means of communication and organization. Because BuddyPress provides a way to archive documents and conversations, it has become a useful tool for a wide variety of cross-campus groups, committees, and initiatives. And the Commons itself has emerged as a major developer of BuddyPress plug-ins, helping extend the software beyond simple friending functionalities, towards more robust productivity applications.[17]

BuddyPress can be particularly effective in helping to establish connections between disparate courses and communities. In a project titled *Looking for Whitman: The Poetry of Place in the Life and Work of Walt Whitman,*[18] a multi-campus experiment in digital pedagogy sponsored by two Digital Humanities Start-Up Grants from the National Endowment for the Humanities, BuddyPress helped bring together students and faculty members from four campuses in a concurrent, connected, semester-long inquiry into the relationship of Whitman's poetry to local geography and history. As part of the project, each class focused on work that Whitman had written in the location of its college; a course in New York focused on his early, Brooklyn-centered writing career, a course in Fredericksburg focused on his mid-career writing about the Civil War, and courses in Camden focused on his late-career. Students from all classes shared their responses to the poet's work on a single website that used WordPress blogs and BuddyPress groups to create connections between these students and their work.

Many of the assignments for the project were shared among students from every school.[19] An early assignment, for instance, mimicked the frontispiece that Whitman used in the first 1855 edition of *Leaves of Grass.* In that text, Whitman's name did not appear on the title page, leaving the engraved portrait of the author as the major clue to his identity. For our project, we asked students in the first week of the course to introduce themselves to one another by adding an image of themselves and selecting some lines from the 1855 edition of *Leaves of Grass* that seemed particularly powerful to them. Using RSS feeds and tags to aggregate the results into a single project blog,[20] we created a networked, twenty-first century analogue to Whitman's nineteenth-century text.

The cross-campus nature of *Looking for Whitman* necessitated concerted attempts to build a larger sense of community among students in all participating classes. This effort was made more difficult by the fact that the project involved classes from very different types of academic institutions: a general education course at a open-admissions public college of technology, a senior seminar for English majors at a liberal arts college, two graduate classes on Whitman at a research university, and a graduate course for American Studies

majors at a university in Serbia.[21] Among such diverse participants with such differences in background and academic preparation, BuddyPress proved essential in helping students reach out to others. We found, for instance, that students wound up not just reading one another's blogs, but also writing on each other's profile walls, adding one another as friends, and posting updates to their groups. BuddyPress helped knit the social fabric of the project together in important ways by making connection possible through low-stakes engagement.

The Social, Networked, Open-Source Classroom

Classrooms have always been networks, of a sort, with professors and students forming an interlaced series of nodes that take shape over the course of a semester, but tools like BuddyPress can make those networks more open, more porous, and more varied. In very useful ways, the classroom-as-social-network can help create engaging spaces for learning in which students are more connected to one another, to their professors, and to the wider world. While it is unlikely that most of my students will wind up having their work featured on the website of a nationally syndicated radio show, WordPress and BuddyPress have helped make that a real possibility for all of them.

[1] See ‹http://lindsayc.wordpress.com/2007/04/11/16/›.

[2] See ‹http://www.radioopensource.org/›.

[3] See ‹http://www.amazon.com/Ralph-Ellison-Biography-Arnold-Rampersad/dp/0375408274/›.

[4] See ‹http://www.radioopensource.org/ralph-ellisons-america/›.

[5] Before June 2009, WordPress and WordPress Multi-User were distinct pieces of software (WPMu was a version of WP that allowed for multiple blogs). As part of the June 2010 debut of WordPress 3.0, the two were merged, and the new terminology for a multi-blog WordPress installation became "multisite." Although BuddyPress initially appeared on WPMu installations, I will use the more recent term "multisite" to prevent confusion.

[6] WordPress can be downloaded for free from wordpress.org, but prospective users must have server space to install it; a free, hosted version of the platform is available on ‹http://wordpress.com/›.

[7] See ‹http://buddypress.org/›.

[8] See ‹http://www.wsc.ma.edu/facultycenter/lowstakes-benefits.pdf/›.

[9] See ‹http://wordpress.org/extend/plug-ins/custom-profile-filters-for-buddypress/›.

[10] Public groups are listed in the site-wide groups directory, and everything that happens within them is fed into the site-wide activity feed; so, for example, when a member posts a message to a forum in a public group, a notification such as "X posted a message to the forum topic, 'Course Assignments for Monday'" will become part of the site-wide feed. Private groups are listed in the group directory, but they are closed to non-members; membership requests need to be approved by group moderators, and activity is visible only to group members. Hidden groups are completely secluded. They are not listed in the group directory, and new members must be invited to join the group.

[11] See ‹http://www.itap.purdue.edu/studio/mixable/›.

[12] The recently revised Facebook terms of service state that "You own all of the content and information you post on Facebook, and you can control how it is shared through your privacy and application settings." But recent debates over privacy on Facebook suggest otherwise ("Statement"). See also Figueroa.

[13] Facebook appears to be moving towards a public offering, but the details remain unclear (Schonfeld).

[14] In 2010, Developer Owen Mundy responded to this problem by creating "Give Me My Data" (http://givememydata.com/), a tool which helps Facebook members export their data from Facebook. I thank Michael Mandiberg for bringing the tool to my attention.

[15] Though Facebook privacy controls allow members to restrict certain friends from seeing particular profile page elements, even the act of implementing such restrictions, if detected, could cause offense.

[16] See ‹http://commons.gc.cuny.edu/›.

[17] For a list of plug-ins created by the CUNY Academic Commons Development team, see its page on the WordPress Repository: ‹http://profiles.wordpress.org/users/cuny-academic-commons/›. A fuller discussion of the CUNY Academic Commons may be found in an article that I have co-authored with George Otte, forthcoming in the journal On the Horizon.

[18] See ‹http://lookingforwhitman.org›.

[19] A list of projects may be found at: ‹http://lookingforwhitman.org/projects/›.

[20] See ‹http://frontispiece.lookingforwhitman.org/›.

[21] I have expanded upon this aspect of the project in a blog post titled "Hacking Together Egalitarian Educational Communities; Some Notes on the Looking for Whitman Project," which may be found at: ‹http://mkgold.net/blog/2010/05/28/hacking-together-egalitarian-educational-communities-some-notes-on-the-looking-for-whitman-project/›.

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An Argument for the Web in the Equally Messy Realities of Life, Democracy, and Teaching

Vanalyne Green

Let's begin with some background about teaching and privilege and then move on to two online forays: Project Implicit, and, most importantly, the blog.

Informed by the thinking of Jacques Rancière,[1] I stage teaching as an entry point rather than a delivery system for my knowledge. I wish to open up possibilities for how we receive images and the terms we apply to ourselves. The questions I often ask relate to such issues as how images or styles become overly determined (such as the use of handheld cameras to signify a more authentic take on reality), as well to bring to consciousness questions about audience—for whom is a work made? I screen art, either online or in analog format, that reflects on the nature of media through its formal structure. Even in a production class, I assign readings in critical theory and contemporary art criticism. This is, in part, to signal to students that the development of a style is not the aim of the course. For instance, I assign Martha Rosler's prescient article "Video: Shedding the Utopian Moment," which debunks the conventional wisdom about essential properties of a medium and marshals an analysis rooted in cultural studies to think hard about medium specificity (259).

I always show works that directly address biases. We look at a range of art and artists, such as Adrian Piper, Kara Walker, Marlon Riggs, Kerry James

Marshall and Kevin Everson. Lawrence Andrews's brilliant *An I for an I* is one of the pieces that most successfully invokes an awareness of unconscious discrimination. I foreground questions of gender when I teach digital media because I think, in general, the medium as it is taught is still gendered male. Although the situation has changed dramatically, I nevertheless feel obliged to observe the differences in the way men and women students enter into their work in electronic forms of media.

Project Implicit

Working with images requires us to address assumptions about the nature of identity, such as which groups of people occupy central narratives in media (mainstream or not), whose story deserves recognition, and how those stories are told. One could argue that crucial to the discussion of representation are the hidden biases that students themselves bring into the classroom situation. To give an example, a student with a South Asian name complained that others said his art works (portraits of people and characters sketched in white on a black background) were "sinister;" it seemed that these comments were not about the work but something else. I interpreted his peers as saying that they were uncomfortable with difference and felt I had to interrupt a mostly unconscious moment in which tension about difference was being acted out, as compared with being discussed. To this end, for the past couple of years, I've been experimenting with Project Implicit.[2] I first read about the online tests during the run-up to the 2004 US election, when Barack Obama's racial background was foregrounded to such an intense degree. Project Implicit provides a series of questionnaires, ranging from attitudes about gays and straights, skin color, age, to name a few, that are done in a matter of minutes. You're meant to take the tests quickly so as not to have too much time to think about what the politically correct answers might be, thus rendering the process a viable gauge of hidden bias. But after assigning the test and participating in the ensuing discussion, I address students' reactions because they felt embarrassed and guilty and didn't want to reveal what they found out about themselves. By framing Project Implicit with screenings of such works as Adrian Piper's *Funk Lessons,* I'm experimenting with ways to help people feel comfortable about discussing something that's ubiquitous—hidden bias—but not desirable.

Rehearsing the Identity of Being an Equal

Without a doubt, the blog has become the single most peculiar and life-enhancing tool in my teaching. If you Google the words "democracy" and "blog," it's amazing how many entries appear (I netted around 22 million).In addition to the claims one sees while scrolling down the pages, there are claims related to the potential for democracy and blogging. I don't wish to engage in technoromanticism here, but rather to argue that the blog might offer some opportunities—at the moment, at least—for nonhierarchical learning, or a more democratic environment.

As a collaborative medium, the blog requires that students relate differently to one another and to the work they are considering. This can complicate their understanding of both the workings of the internet, and of digital media in general. The blog can challenge students' biases about each other and allow expression and interaction beyond the individual "artist's" production or the hierarchies of classroom discourse. Using the blog also changes my relationship to the students as teacher and representative of the academic institution.

The academic reward structure in higher education still tends to reward individual achievement, even though collaborative projects are currently being funded. Grading collaborative work is ambiguous enough to allow unconscious bias to operate. For example, I've observed women students who, in the process of a collaborating, take on the role of administrators and who are then penalized because their contributions weren't considered as creative as others in the group. Art is a form of social energy—a credo that I first saw articulated in a now forgotten article for *Block,* a highly influential journal that contributed to the birth of the field of visual and cultural studies—and the role of administrative work within a collaboration is something that deserves to be considered within the frame of art-making. A correlative would be to assume that software artists aren't artists because they program. Such contradictions are difficult, though necessary, to speak to. Within the contained and visible space of the blog, I wonder if the dynamic interface between seemingly disparate modes of work, administrative and creative, might merge just a little bit more?

Journals, in their various inky, scratched, molded and scrawled forms hark back to however long ago it was that people felt the need to describe lived life. One might consider, for example, Clarice Lispector's observations, stories and essays written for a newspaper and later published as *Selected Cronicas* as a blog before blogging existed. Hunt around the words written about the original of the blog, or weblog, and the name "Pyra Labs" keeps appearing. Do some more sleuthing and the names of Evan Williams and Meg Hourihan

circle around Pyra as co-founders of the company that made personal blogging user-friendly (Scott). You'll find writers describing this moment in 1999 as the "big bang" in blogging history, but only because this is when providers made weblogs convenient by offering the capacity for post dates, for example, as well as syndication and comment features. In other words, this new openness was made possible (and could be made impossible) by commercial providers.

I created a blog for a first year art class in 2005 for the purposes of organizing a group show and reinforcing ideas and themes discussed in class. Blogging had the capacity to contain negotiations around tasks and, contrary to the flaming we all know so much about, to act as a platform for rehearsing leadership. Trying out suggestions and encouraging ways to collaborate seemed much less stressful online. The next year, I set up a blog for a curatorial practice module and the dynamic morphed dramatically, though with the same themes: people who had been shy in the analog class found that they could have a voice on the Web.

The power balance shifted and seemed to let loose a lot of energy. So much so that for the last half of the class, there were two weekly classes, each for two hours. I taught one of the classes at the usual time, and at the other, a byproduct of the blog, students met to discuss ideas and organize their show. I felt a little strange about this: What were the implications of a teacher not being at the class; was I being ejected? And, yet, this is exactly what good teaching should achieve: a class outside the class. I was always available and sometimes the students invited me to hear about what they were doing and give feedback.

Everything about teaching is fluid, as students and situations change, but I suppose my one caveat about setting up a blog is that what happens next is unpredictable. Often when someone emerges as a leader or catalyst, the blog spins faster into life and generates an oscillation of activities between the online and offline worlds. Other times the blog is simply a lateral device for underscoring the work in class, a good tool for organizing collaborations and keeping a type of continuity, whether gentle or aggressive. I've set up Facebook pages, but the blog has the potential to be a private container, and that is what seems to be the trigger for expansion. It feels safe to try things out, outside of one's usual way of working. I interpret this as tricking the unconscious a little bit: displaying a self on a blog feels public, even if the blog is read only by invitation. The student rehearses a public self without the concomitant risk of a public self. Certain students, I observe, come to life in this environment.

It was so simple: the assignment I gave that initiated more activity both in the class and via the blog (ranging from creating hyperlinks to starting discussions, from posing questions to initiating reading groups, from passive acceptance of assignments to generating self-directed projects), as well as an atmosphere of "permission granted," was simply to ask students to post a text explication—part description, part close reading—of an online art or artist-related website. With the texts accessible for all to see online, everyone became the teacher and everyone had to address the class as a whole when thinking about what was written. This is not new—it is, for example, a common technique in writers' workshops—but the visibility of the screen has a different effect on group work. The text explications remained on the blog, along with links and suggestions and other course work. If students wanted to, they could go backwards and forwards throughout the class in a way that, usually, only the teacher can. Or if, as in writers' workshops, one keeps the written pieces, they get filed or lost and don't become a chronology of the class but artifacts of the individual students.

Perhaps this type of cyber panopticon is a good-enough object, referring to object relations theory (e.g., Winnicott and Klein) or a version of the art school's transitional object. I mean to suggest in a crude way, but similar to Carolyn Kay Steedman's memorable and creative use of fashion as a transitional object, that the blog may be a symbolic space between that of the safe containment provided by the teacher and that of the public sphere. Regardless of the reasons why, my experience indicates that for now, at least, the blog has the effect of helping students rehearse a different identity: the identity of an equal.

[1] In Rancière's On the Shores of Politics, the chapter "The Community of Equals" addresses the oxymoronic nature of utopia, in which measurement, a very un-utopian activity, exists. But Rancière refuses to relinquish the hope for utopian forms of engagement. One of the ways he does this is by writing in a style that rejects the authoritative voice.

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Copy Your Homework
Free Culture and Fair Use with Wikimedia Commons

Michael Mandiberg

In my web and digital-imaging production classes, students are encouraged to actively appropriate images from the vast visual archive the world has already created. In this way, I encourage them to understand the legal, semiotic and ethical considerations of the copy-and-paste culture we live in. The tradition of appropriation in image-making, ranging from dada collage to post-modern pastiche, often contradicts students' received notions about originality and authorship. In addition, appropriation-based creative practice may or may not break the copyright law governing the use of those images. By explicitly discussing the ways in which these laws both constrain them and free them to exercise their United Statesian First Amendment rights to free speech, students gain a more active relationship to the creation and consumption of media.

Discussions of originality and authorship in the classroom often revolve around plagiarism. Statistics and personal experience indicate that plagiarism and academic dishonesty are on the rise in the classroom (Blum; Gabriel), but in contemporary visual media production, the notion of plagiarism can be a red herring that distracts from pressing legal and semiotic considerations. While my colleagues who teach composition and scholarly writing courses teach a different set of rules of how to avoid plagiarism by properly

citing sources, and a different gray area that might focus on paraphrasing, for example, teaching visual digital media requires reframing the scenario.[1] With digital media, we need to shift from a dialectical opposition between citation and plagiarism, and into the interrelated consideration of legal issues of free use and fair use, semiotic concepts of appropriation and citation, and the ethical failure of plagiarism. For images, free use is most frequently based on a Creative Commons (CC) license or the Public Domain (PD) status of the image, and fair use is based on an exemption to copyright law that allows for certain kinds of uses of copyrighted media (such as parody, which is based on the transformative nature of the use); these are legal questions governed by licenses and laws, not ethics. Appropriation is the use of other people's images, either in full or in part, and is not plagiarism. Closely related to appropriation is the distinction of whether an image that takes another image means to refer to the original image, as would be the case in a parody, or whether the borrowed image was merely used as suitable raw material for a collage. The question of appropriation and citation is not one of legality but, rather, of semiotics. Appropriation and citation are not indicated by a formal footnoting practice, but by the semiotics of the image itself. Whereas the semiotics of an image that successfully chooses its source images and negotiates the intricacies of visual citation will establish that the source was made by someone else, plagiarism occurs if students submit a finished work they did not create themselves *but claim as their own work;* often this is a question of ethics and intention, and has little to do with the legal or semiotic questions outlined above. Whether an image was plagiarized is a separate question from whether it contains CC-licensed images, fair use of images, or appropriated work.

Understanding these complicated, interrelated concepts is often difficult for students, but it is imperative that they learn them. In my experience, most of their courses have repeatedly enforced the notion that taking anyone else's work without a formal footnote is plagiarist theft; thus, they have a hard time understanding that the rules are different for image-making. They also need to understand that, although there is no formal footnote system in image making, there are semiotic languages that serve a similar purpose. While the semiotics of encoding and decoding citations in appropriated images is a difficult skill, to be built over many semesters of projects and critiques, the concrete set of rules governing free use and fair use is more easily learned and clarifies the difference between these uses and plagiarism. More than just clarifying what is and is not plagiarism, learning the rules of free and fair use liberates students to embrace the culture of appropriation they grew up in and create works for that context.

To help students learn the difference between free use, fair use and plagiarism I introduce these concepts early, and require my students to understand and follow the licenses on the images they use. I introduce Free Culture via Creative Commons licenses and Free/Libre Open Source Software (FLOSS) in the first week of the course.[2] I use these concepts to talk about how creators can exercise their copyright with such licenses and, even, hardwire collaboration and sharing into their media objects by licensing them with the copyleft variant of these licenses. I use the "Searching and Sampling" chapter from my co-authored (with xtine burrough) *Digital Foundations: An Intro to Media Design,* which was written for exactly this purpose. We discuss fair use by looking at parody and culture jamming, and I emphasize to my students that when they appropriate a corporate logo for a culture jamming project, they are able to do so because of their First Amendment right to free speech; while Fair Use is a legal defense, not a right, it is predicated on First Amendment rights.[3] I emphasize that fair use is a political act and a right that is not protected in some other countries. It works; they understand the difference and realize the power that originates in their First Amendment rights.

Wikimedia Commons is an image and media file repository, the files of which are all freely available under Free Culture licenses. Wikimedia Commons is a sister project of Wikipedia; both sites are run by the Wikimedia Foundation. The archive holds 7.5 million images, videos, illustrations, sound files, and other media organized by categories, all of which are available to anyone to use either because they are in the public domain or have compatible Creative Commons Attribution or Attribution-ShareAlike licenses.[4] The site "acts as a common repository for the various projects of the Wikimedia Foundation," but the project has important uses outside of the this family of projects.[5]

The creation of a project like Wikimedia Commons is predicated on a set of legal-cultural constructs that include the commons, copyright, public domain, fair use, Creative Commons licenses and Free Culture. The commons is a term used to describe resources that are collectively owned. Historically, "the commons" has referred to natural resources such as the forests, rivers, air and oceans and is most frequently discussed via the history of commons enclosure in England and elsewhere (Hyde; Thompson). More recently, the commons has been used to refer to the collective ownership of cultural objects,

as opposed to the private monopoly of copyrights or patents. Copyright is the intellectual property regime that applies to cultural works, and, although the history of copyright is too large to cover here, two aspects are relevant to this discussion (Hesse). First, when copyright was first formalized in English law in 1710, the period of protection was 14 years with one renewal, after which point the work entered the public domain and anyone could use it. At its conception, copyright was a limited monopoly, the goal of which was to encourage the production of creative work; limiting the monopoly to 14 years prevented abusive full monopolies previously granted by the crown. The United States Constitution adopted the principles of the British model of a limited monopoly, and the Copyright Act of 1790 instituted a period of 14 years, with one optional renewal (United States 1790). The duration of this limited-monopoly period has been rolled back to its current, massive, industry-lobbied length of up to 120 years (United States 1998; Lessig 2001; Sprigman). While determining copyright is a nuanced legal process, a guideline to work from is that all work published before 1923 is part of the public domain.[6]

Due to these legal changes, less works are released into the public domain now than ever before. Second, the United States copyright law includes a set of fair-use provisions that allow the use of copyrighted material for reasons primarily linked to a citizen's First Amendment right to freedom of speech. While public domain images are in the commons, and fair use provides a tool for using copyright images, Creative Commons licensing establishes a legal mechanism for authors to exercise their copyright to allow others to use their work. Working under the "some rights reserved" rubric, CC licenses enable authors to share their work with optional restrictions on giving attribution to the original author, creating derivative works, using the work commercially, and requiring the maintenance of a copy-left license. The Free Culture definition is a rubric adopted from the Free Software movement to define the freedom to use, study, modify, and distribute works.[7] This widely accepted definition of Free Culture only includes Attribution and Attribution-Share-Alike licenses, which do not put restrictions on the ability to modify and distribute the work; the term *freely-licensed* refers to these licenses. These are the legal-technical frameworks that enable the Wikimedia Commons.

Although Wikimedia Commons is an international project, fair use exemptions are subject to national laws, so Wikimedia Commons does not permit the use of images that rely on fair use.[8] Some localizations of Wikipedia do allow for some images based on fair use, though it is discouraged if a free use image is available.[9] Fair use, and the freedom of speech it is based on, does not necessarily apply globally.

Wikimedia Commons has several important contemporary counterparts and one important precursor. Several large image and media archives are dedicated in part or in full to freely licensed media: at the time of this writing Flickr has over 170 million Creative Commons licensed images, 38 million of which are freely licensed,[10] and the Internet Archive has 400,000 video files, 800,000 sound recordings, along with 2.5 million texts.[11] One important precedent to these archives is the United States Library of Congress, which holds 5.3 million maps, 3 million sound recordings and more than 14.5 million photographs and prints ("Annual Report of the Librarian of Congress"). Because much of the Library of Congress's archive predates 1923, or is derived from government entities whose work is public domain, it is a major resource for freely licensed images. Recently the Library of Congress has been making more of their collection available online in the American Memory archive[12] and Flickr's Commons project.[13]

While most of the digital-imaging production assignments in my courses involve Wikimedia Commons as one potential source of CC and PD images, I also assign students to add new images to the Wikimedia Commons.[14] I point my students to Wikipedia's list of contemporary artists and instruct them to find compatibly licensed portrait photographs of one of these artists, as there is little actual visual work by most of these creators that is freely licensed. They transfer this image to Wikimedia Commons and then embed that image into a Wikipedia page. The subject matter of the photographs could easily be changed to match the subject matter of a different course.

The students are instructed to find the source image on Flickr via the Free Image Search Tool[15] or the Creative Commons search engine[16] and upload the image to the Wikimedia Commons. We review the guidelines for adding images to Wikipedia[17] and discuss which types of image licenses are compatible with Wikipedia[18] and which are compatible with the stricter guidelines for Wikimedia Commons.[19] After registering accounts on Wikimedia Commons and Wikipedia, the students use the Flickr Upload Bot[20] to upload files from Flickr while avoiding having to write MediaWiki's BBCode markup language. The upload process requires students to add categories, which provides an opportunity to discuss the role of tags. The Flickr Upload Bot is a little particular: first, the page it creates must be saved; then, after the page is saved,

one has to click on the link, "You must then click this link to complete the upload." Once uploaded to the Commons, the students add the image to the artist's Wikipedia page.

I encourage students to follow the revision history for the image file they created on the Wikimedia Commons and for the page they added the image to on Wikipedia. Approximately one month after they upload the image, I have them return to the revision history and see if their image is still included on the Wikipedia page, and on the Wikimedia Commons. I use this as an opportunity to talk about the role of peer-review and editing in the peer production process.

I usually give this assignment at the beginning of a course in order to cement students' understanding of how Creative Commons, Free Culture and the Wikimedia Commons archives work. They understand these abstract ideas through the application of concrete, first-hand experiences; while students can gain this understanding to a certain degree by only using freely licensed images, being able to take "somebody else's" image from their website or Flickr page and upload it into a shared archive brings these abstractions into a form that is very tangible for them. It helps them understand that they can act in the world. As active participants in writing culture, they become more engaged digital citizens. Finally, it adds a dimension of reality to their homework assignments not provided by their (otherwise necessary) in-class critiques, student portfolios or blog posts.

In courses that include photography and image creation, I refocus the assignment from locating existing images to creating new images. I charge students with photographing noteworthy aspects of their city or neighborhood and adding those to the appropriate Wikipedia pages. For advanced students, I have modified this assignment into a research project, where they explore a particular artist, group of artists, or media phenomenon; the end goal is to identify gaps in the Commons' collection and locate images to complete the archive. Additionally, this exercise could be modified for humanities classes.

Wikipedia allows the inclusion of works that rely on fair-use provisions, while the Wikimedia Commons does not, as it adheres to a stricter international definition of Free Culture and free use. When I give this assignment, I lead a discussion on the difference between free and fair use and the role of national legal systems in determining how makers can or cannot legally use images. My United Statesian students are always surprised when they realize that their rights to use an image are secured not by some intrinsic human condition, but by the intra-national legal power of the First Amendment to the United States Constitution, and that the laws of other nations may not guarantee these rights. While I don't want to overstate the power of such a modest exercise, this legal knowledge and political awareness seems to make them more engaged in the politics of free speech.

[1] These questions have a similar manifestation in code-based work, where students are required to make use of classes or frameworks that others have written, and also in other creative media such as music and creative writing, which have a strong tradition of appropriation and citation.

[2] Free/Libre Open Source Software is software which is licensed and distributed in a manner that allows anyone to view the source code; any user of this software is free to use it in any way they want, including changing the code, so long as they preserve the license that allows this freedom of use. In this usage, "Free" refers to the freedom described above and not the price of the software; this dialect is often framed by terms libre and gratis. Free Culture is the application of this principle of freedom to non-code-based cultural works. Under the rubric "Some Right Reserved," Creative Commons licenses are a schema to extend each user's copyright to allow for various degrees of sharing based off of this Free Culture model. For more on FLOSS, see Stallman and Raymond. For more on Creative Commons, see ‹http://creativecommons.org/›. For more on Free Culture, see Lessig 2004, and ‹http://freedomdefined.org/Definition/›.

[3] The Electronic Frontier Foundation (EFF) is one of the key organizations which has protected these rights, and has recently created Teaching Copyright, ‹http://www.teachingcopyright.org/›, a high school curriculum to teach copyright, free use, fair use, and free speech.

[4] Wikipedia is licensed with a Creative Commons Attribution-ShareAlike license. This means that anyone can freely use any element of Wikipedia, as long as they give credit (Attribution) and preserve this license (ShareAlike). This license is also compatible with the Attribution license, which does not require the preservation of the license; thus it can be augmented by the ShareAlike clause. This license, which governs content on Wikipedia, is not compatible with the more restrictive Creative Commons licenses that forbid the commercial use (NonCommercial) or modifications of the content (NoDerivs).

[5] See ‹http://commons.wikimedia.org/wiki/Commons:Project_scope/Summary/›.

[6] 17 USC Sec. ch3.

[7] See ‹http://freedomdefined.org›.

[8] See ‹http://commons.wikimedia.org/wiki/COM:FAIRUSE/›.

[9] See ‹http://en.wikipedia.org/wiki/Wikipedia:Non-free_content/›.

[10] See ‹http://www.flickr.com/creativecommons/›.

[11] See ‹http://www.archive.org/›. Data on other archives available at ‹http://wiki.creativecommons.org/Metrics›.

[12] See ‹http://memory.loc.gov/›.

[13] See ‹http://www.flickr.com/commons/›.

[14] See ‹http://www.351.oomm.org/#flickr/›.

[15] See ‹http://toolserver.org/%7Emagnus/fist.php/›.

[16] See ‹http://search.creativecommons.org/›.

[17] See ‹http://en.wikipedia.org/wiki/Wikipedia:Finding_images_tutorial/›.

[18] See ‹http://en.wikipedia.org/wiki/Wikipedia:Non-free_content/›.

[19] See ‹http://commons.wikimedia.org/wiki/COM:FAIRUSE/›.

[20] See ‹http://toolserver.org/%7Ebryan/flickr/upload/›.

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How I Used Wikis to Get my Students to Do their Readings

Ulises A. Mejias

We have heard the complaint or issued it ourselves one too many times: "They don't read!"

After carefully planning and selecting the reading materials, we get to class only to find that students—those who actually bothered to crack open the book—did not get past page three because the reading was "boring," or "too long," or the author "could have said the same thing in fewer words." We have appointed the blame for this evil on different things at different times: the educational system, television, the cynicism of the 80s, the apathy of the 90s, and more recently, of course, the Internet and the socialized stupidity it seems to be breeding (Carr).

But can Digital Media provide some simple pedagogical models to promote a more active engagement with that most ancient and passive form of learning: the reading assignment? In this article, I describe the use of Wikis (web pages that people can easily edit as a group) to get students to summarize, ask questions, and comment on a reading before they even meet for class. And while many new—and old—tools can be used to accomplish similar results, what is innovative about this approach is that whereas before reading and writing was something students were supposed to do individually in the

isolation of their rooms or the library, now—thanks to Wikis—it is a project they tackle collaboratively as a class. The goals of this critical pedagogy are thus both modest and radical, at the intersection of old and new technologies: to use Digital Media to change the way students interact with texts.[1]

What is a Wiki?

Wikis are destined to be one of those inventions that are so universal, and the need for them so obvious, that perhaps in a few years people will stop to notice their presence altogether, and even refer to them by name. A brief history of the Wiki will illustrate why this is the case. In the beginning, so to speak, the Web was *read-only,* meaning that people could only browse its static contents. But the inventors of the Web always intended for it to be a *read-write* Web, a collection of live pages that people could edit and alter on the go. Of course, web pages are editable by those with the right programming skills and the appropriate access rights to the files. But the point was to make it possible for people without programming skills to visit a particular web page and be able to edit it right on the spot.

In 1994, Ward Cunningham came up with an elegant solution: the Wiki. What distinguished Wikis from other collaborative software was the fact that users could edit any web page or create new pages using only their web browser and a very simple editing or markup language.[2] A Wiki allows a community of people to edit and create—simultaneously, in real time—as many pages as they want. The most recognizable example of a Wiki is Wikipedia, which now contains more than 16 million articles or pages, any one of which you can go and edit right now. In theory, in a Wiki no participant enjoys more editorial power than another, for any participant can alter the contents of any page at any time (in reality, depending on the system configuration, administrators enjoy certain privileges like locking or deleting pages, or controlling user access). Thus, the writing of a Wiki is a non-linear process, as various editors can work on various parts simultaneously and concurrently. And while this may sound like a recipe for chaos, the Wiki is practically indestructible because it makes a copy of itself every time a change is saved, allowing the community to compare earlier versions and revert to them if desired.

My Experience with Wikis

I have been using Wikis as course learning environments for some years. For the reasons described above, I find them to be more open or flexible than the traditional Learning Management System (such as Blackboard, WebCT, Angel, etc.). I not only use the Wiki to publish course materials like the syllabus and the schedule, but students use it to publish their assignments, review each other's work, and collaborate on group projects. Specifically, I will be discussing the class assignment, which involves summarizing and discussing the assigned readings before we meet in class.

Before I begin, I should point out that it is not the purpose of this article to discuss in detail the technicalities of choosing or setting up a Wiki, so I will only briefly mention the two solutions I have some experience with. The first one is a non-hosted, open-source solution called Tiki Wiki.[3] Non-hosted means that I am responsible for installing and maintaining the software myself; my school provides no technical support, no server space, and no help as far as covering the server costs. This can be a bit time consuming, since I have to install and set up the Wiki software on my own server, but it gives me complete control. Furthermore, because Tiki Wiki is open-source software, it is free to download and use, and makes me part of a community of developers and users that supports the principles behind Free/Libre Open-Source Software.

The other solution I just started to work with is Google Sites,[4] which is obviously hosted by Google, and which you can start using without having to install anything (Google Sites is basically a Wiki, even though Google doesn't always call it that). The basic service is free, while you have to pay for premium services. Lest you think this is about to turn into an endorsement for Google, let me be clear: when my state university decided to switch to Google Apps for Education as a way to cut costs by providing "free" email, calendaring, file storage, document sharing, etc., I raised questions about privacy, security, and Google's ability to use the information I generate while conducting school business for its profit (Mejias). But my concerns about the privatization of public education did not delay the arrival of our Google overlords, and so I am experimenting with Google Sites to get a better grasp of what is at stake.

The Assignment

Using Wikis to support the reading process and re-engage the text has shifted the roles of instructor and learners. In the old model, the instructor assigned readings, which the majority of learners didn't do, except perhaps for the model students who read in isolation. During class, because it was assumed that most learners didn't do the readings, the instructor lectured on the

material from the readings, and the model students asked questions. In a best case scenario, most of the learners in fact did the readings, and the instructor could facilitate a more dialogical discussion of the text during class, but students still read in isolation and there was no extension of the reading experience outside the classroom.

In the new model, I tell students that their assignment before we meet for class is to work on the Wiki page created for the assigned reading. I explain there are two parts to the assignment, which correspond to the two parts of a Wiki page. In the first part of the assignment (the part that corresponds to the section of the Wiki page that can be edited), I ask students to collaboratively write the best possible summary of the reading. I tell them that in this part, I am interested in what the author(s) of the text are saying, not in what the students think of the reading. Since Wiki pages can accommodate multimedia elements, students are encouraged to embed images, hyperlinks, videos, or anything else that can supplement the readings. But the bulk of the work consists of students writing, editing and organizing a summary of the key concepts of the assigned reading.

In the second part of the assignment (the part that corresponds to the bottom section of the Wiki page), students are asked to use the "Comments" function of the Wiki to post their individual comments about the text: any reactions they might have, or questions they might want to discuss in class, and so on. I tell them that this is the part where they are allowed to express their personal opinion. I don't require them to reply to each other's comments (unless this is an online course), since that is the purpose of the face-to-face class discussion.

In essence, what students are doing is contributing to a set of group notes about the text. Because they are working together, it no longer feels like they are reading in isolation. I have found that by the time we meet in class, the experience of collaborating in the Wiki has not only increased the engagement with the text (I discuss specific benefits below), but the collection of comments at the bottom of the Wiki page provides us with plenty of material to organize the class discussion around. My job as an instructor is then to facilitate the conversation, unpack what was said in the comments, explore disagreements, etc.

Examples

I will briefly describe what a couple of these Wiki pages end up looking like.

For an undergraduate seminar I teach on technology and culture, I ask students to put together a Wiki page for the first chapter of Murphie and Potts' *Culture and Technology*. This chapter covers the main theoretical frameworks we will be using throughout the semester to talk about technology, and introduces key intellectual figures, many of whom the students have never heard about but whose work we will return to later in the semester. In short, it is a very important chapter, but it is also overwhelming for students not familiar with the field. Furthermore, it comes early in the semester, when students are still figuring out how to work with the Wiki and what I expect them to do in the assignment.

Apart from explaining the assignment a couple of times in class, demonstrating the functioning of the Wiki, and pointing out the reference and help materials available for students to consult on their own (how-to videos, user guides, etc.), I tend to play a more active role in creating the outline or blueprint for the Wiki page early in the semester, leaving the blanks for the students to fill in. In other words, I might create some headings or subheadings (not all of them), or insert a link or a picture to indicate that this is a possibility. Pretty soon, however, students start to fill in the gaps, and what we might end up with is a page that contains the definitions from the chapter of the main theoretical frameworks (technological determinism, cultural materialism, etc.), as well as a list of key questions that the authors raise, and a directory of the philosophers mentioned, with a summary of their arguments along with a picture of what they look like and a link to their Wikipedia page.

The other example is from the same class, but comes later in the semester, when I ask students to read Heidegger's essay *The Question Concerning Technology*. This is a difficult reading for undergraduates to tackle, and for a class to discuss meaningfully in eighty minutes, so using the Wiki to summarize and comment on the reading before class is very helpful. By this time in the semester, students are comfortable with the Wiki, so I give them free reign in designing and organizing the page. In the particular year I'm discussing, what students collectively put together was a page that contained some biographical information on Heidegger (including, as some students reported in shock, his associations with the Nazi movement), an overview of each section of the essay (accompanied by illustrations to some of the things Heidegger alludes to, like the Rhine river or the poet Holderlin), and a summary of the main points of the essay, as understood by the students. Each

student also posted one or two paragraphs of personal comments at the end of the page, some liking the reading, and some hating it, but giving us plenty to discuss in class.

Benefits and Lessons Learned

Every semester, during the process of using the Wiki to engage the text, my students come to certain realizations about the process.

Writing as a collaborative exercise

During the first few days, it is interesting to see how—despite instructions given in class—students approach the assignment. The first ones to contribute to the Wiki page usually craft self-contained summaries of the reading, and then sign their names at the bottom, thinking they have probably satisfied the requirements of the assignment. The habit of writing as an individual author dies hard, especially since they have no previous experience writing any other way. What I usually do is delete their names, break up their paragraphs and scatter the parts across the page according to where each part fits best. Everyone starts to get the idea soon afterwards, although it does take a couple of weeks for learners to become comfortable with the process. We also talk in class about the various roles Wiki contributors can play: not just adding content, but organizing, editing (correcting grammar, spelling, etc.) and formatting (layout, consistency, adding multimedia, etc.).

Transparency of the editing process

An important moment in the understanding of how Wikis function comes when I show students how to access the "Revision History" of a Wiki page (usually accessed through a tab at the top or a link at the bottom of the page). As I explained earlier, each time a change is saved to a Wiki page, the system saves a copy of the previous version, along with information about who is making the change, at what time, etc. When I go to a student's user page on our Wiki and completely delete its contents or vandalize it, I notice a brief sign of alarm on their faces (obviously they know I am up to something). But when I show them that, thanks to the Revision History, not only can I compare any two versions of a page and revert to a previous version, but also see exactly who made the changes, they understand that the Wiki provides safety mechanisms that prevent the editing process from devolving into chaos.

Furthermore, I explain how I use the Revision History to track their participation and assign them a weekly grade. Editing the Wiki and posting a comment for each reading is worth a particular number of points, and by using the Revision History to compare various versions of the page, I can see not only who contributed to the page, but the extent of their participation and the grade they should get.

Lastly, I think an understanding of how the Revision History of a Wiki page works has the potential of transforming students into critical practitioners rather than merely passive consumers of digital media. While most of them use Wikipedia, for instance, few understand the ongoing, collaborative process that happens behind the scenes of an article, and the role they themselves could potentially play in the production of knowledge. The Revision History unveils a whole new world of participation to them.

Blended learning

While I have applied this model successfully in an online learning environment (using the comments sections to carry on a discussion about the reading), what I have been describing is an application of Wikis to support blended (online-onsite) learning. The assignment to collaboratively build the Wiki page is given the week before we meet in class. This gives students a few days to do the reading and put together the Wiki page. During that time, they are not reading in isolation but working asynchronously on the Wiki page, which is an effective way of extending learning beyond the classroom.

The Wiki as object of study

Although it represents more work for them (and for me, as far as grading), most students admit at the end of the semester that this assignment forces them to engage with the readings in a way they would otherwise not do. Some of them attempt to complain about the extra effort required, but they themselves recognize that they get more out of the course because of it. Additionally, students acknowledge the important role that these Wiki pages acquire as study guides in preparing for exams or putting together papers or projects. More than that, these pages become sites of social interaction which document and evidence the effort students put into their learning. It is clear students develop a sense of ownership and pride in them.

Conclusions

Some might see in this exercise an attempt to turn reading assignments into a measurable and quantifiable activity, thereby contributing to a Taylorization

of learning. As with all applications of digital technology, perhaps to a certain extent this is true. But as an educator, what I find attractive about Wikis is the new form of literacy they can instill in learners. Wikis allow us to participate in the evolution of a multimedia text, an evolution that reflects the decisions not of a single individual, but of a community of writers. This new form of literacy reflects the textual practices not of isolated authors, but of multiple and simultaneous authors.

By forcing learners to rethink the way they write, Wikis can engender a new understanding of the potential of digital media. This is important because despite the emphasis on social networks, most of the digital media we are now infatuated with cater to the egotistical voice of the individual (corporations have built whole business models around this fact). Wikis are unique because by promoting collective production—not just self-publishing—they allow learners to think beyond themselves and to contribute to something larger than themselves. This is a lesson I do not see replicated in a lot of the so-called social media of our times.

[1] The lessons I will discuss are derived from experiences in small classrooms of up to 25 students. There might be a way to scale this model to larger classrooms with the help of teaching assistants, but I haven't experimented with it yet.

[2] These days, many Wikis don't even require a special markup language and allow for direct word processor type editing. For more on the history of Wikis, cf. Leuf, B., & Cunningham, W. (2001). *The Wiki Way: Quick Collaboration on the Web*. Boston: Addison-Wesley.

[3] See ‹http://info.tiki.org/›.

[4] See ‹http://www.google.com/sites/›.

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Google Wave
Pedagogical Success, Technological Failure?

Kathleen Fitzpatrick

My "Introduction to Digital Media Studies"[1] course combines a critical, historically-oriented approach to understanding the developing relationship between computing and communication with a wide range of hands-on experiences of contemporary networked communication systems. My students blog throughout the course, and they complete a series of web-oriented projects. My primary goal in having them experiment with these technologies is to get them to think critically about their uses; what goals are enabled by web-based video, for instance, and what is inhibited? What modes of communication work well in a blog-based environment, and what are that environment's limitations?

I teach in a small, liberal arts college that places a high premium on face-to-face conversations and critical discussions. Throughout the semester, we spend time reading about and discussing critical issues such as privacy and intellectual property online, so that my students can begin the process of thinking not just about the creative freedoms that new online systems promote, but also the ways that those freedoms are constrained.

Because these technologies are not just included among the modes in which our class business is conducted, but also the subject of the course itself, nearly all of our discussions and projects have some self-reflective character.

Students repeatedly raise questions during the semester about the technologies they are using and the assumptions that underwrite them.

During the 2010 spring semester, I asked the class to use Google Wave for one key, ongoing assignment. While the project was an unequivocal success, the technology itself has now failed. Exploring both how we used Wave and the reasons for its failure might help press our thinking about teaching with digital media in some productive directions.

Google Wave

The story of Google Wave is in a number of ways exemplary of the best and the worst of technological development: this new mode of thinking about project-based communication promised revolution, and could perhaps have delivered, but a bad rollout, a creaky infrastructure, and a weak sense of its purpose resulted in the project's development being discontinued before it could even really claim to have been established. The systems that Wave was grounded in were open, however, and are being incorporated into other technologies online, so it's likely that my experiences of teaching with Wave will remain useful, or will be applicable to other new systems that bring together synchronous collaboration and asynchronous communication. Nonetheless, as Jeff McClurken pointed out to me, my experiences of using Wave in the classroom might serve as a caution against teaching a specific tool rather than a more general process (McClurken).

Google Wave was described by its developers as "a new web application for real-time communication and collaboration" (About) and was in practice part e-mail, part instant messenger, and part collaborative writing software. I first wrote about teaching with Google Wave for Profhacker in June 2010, reflecting on my uses of the system in my Spring 2010 courses. At that point, Wave was just about a year old, but an initial flurry of rather extraordinary enthusiasm among technophiles quickly settled down into disgruntlement (often from those who weren't in the first round of users to be granted access) and dismissal (from many of those early adopters who found themselves overwhelmed by the system's many bells and whistles and befuddled by the absence of a clear purpose for them). At the time I wrote about it, talk about Wave had mostly settled down into a series of wry jokes about the fact that the majority of what people did on Wave was talk about Wave, as well as complaints about the too-muchness of the open Wave environment and the too-littleness of actual community within the system.

As I noted, part of the problem was with the system's rollout: because of the need to bring third-party developers into the process of building extensions for Wave, as well as to ensure that the system would scale appropriately as its user base grew, invitations to join Wave were kept quite exclusive at first, only gradually expanding to include more users. Part of the hope, of course, was that this exclusivity would create buzz among the digerati and excitement among those waiting for accounts; unfortunately, it also created higher expectations about the system's capabilities than could be met early on. One problem with such a rollout for a system focusing on reinventing email was of course that there was no guarantee that, having received access to the system, users would find someone with whom they actually wanted or needed to communicate. The rollout also inevitably irritated those who found themselves not to be in the elite group of digerati who got first crack at the system. This problem was exacerbated by the fact that the developers were right: the system didn't scale well. As more users were added, the system became increasingly unstable, leading many to abandon Wave before the necessary improvements were made.

But finally, the most crucial problem was perhaps that Wave's users—and more importantly its evangelists—didn't have a clear enough sense of what the system was actually good for. The phrase "reinvention of email" rang perhaps a little too loudly in descriptions of Wave, as did comparisons to instant messaging, and connections to social software. These analogies suggested that Wave was meant to serve as a general purpose personal communication tool, updated to facilitate the kinds of social connections that we currently engage through services like Facebook and Twitter. This, I now believe, was a disastrous bit of mismarketing; what Wave was, in fact, was extremely powerful groupware, designed to facilitate the interactions of groups working together on specific projects (which constitutes a fairly accurate description of many college classes).

Marc Parry wrote in the *Chronicle of Higher Education* in January 2010 about some of the possibilities that Wave might present for teaching (Parry), but by that point, few such experiments had been conducted. Given that I teach classes in what sometimes gets referred to as "New Media," though, I figured I had a mandate to have my students experiment with the system and see what it might be able to do for us.

Inspired by Jason B. Jones's use of Wikis in the classroom (Jones, Wikis), and particularly his wikified class notes assignment (Jones, Class Notes As-

signment), I decided to ask my students to use Wave as a means of collaborative note-taking. My plan was a bit more laid-back than Jason's—I wanted this to be a real experiment—so I described the assignment in the syllabus like this:

Class notes project (10%): Over the course of the semester, you will compile a set of collaborative notes for the class, detailing the important issues from our readings, the main threads of our discussions, any questions that we raise that remain open, and so forth. You'll use a combination of Google Wave and Google Docs for these notes: Wave for the initial note-taking and discussion and Docs for the final product. Each of you will serve as lead note-taker during at least one class session, though you'll be expected to contribute to the collaborative notes for every class period.

In order to put this plan into action, however, some preliminary set-up was required:

Google accounts: Each student needed an account within the Google system, and they needed to be willing to share that username with me and with the rest of the class. I let my students know that if they had a Gmail account they were willing to share, they could use that, but if they preferred to keep their personal accounts private, they could create a new Gmail account specifically for this class. (However, as I planned on using that account for most of our class communication, they had to swear that they would check this account frequently.)

Google Group: As I received the students' Google account information, I would add them to a Google Group I'd created for the class. The primary function of the group was to ease the sharing of basic information, such as announcements, that didn't require the weight of a full wave—simply email your-group@googlegroups.com, and the message goes automatically to all group members. It also eased the wave-creation process, as I'll discuss shortly.

Google Wave accounts: Accounts on Wave are linked to, but separate from, regular Google accounts, and so these had to be created as well. In January, as I started this process, obtaining a Wave account wasn't simple; it necessitated receiving an invitation from someone already in the system. So the first thing I had to do was scrounge a sufficient number of invites to hand out. Thanks to some friends, though, I quickly got those, and sent an invitation to each of my students. By the end of the spring semester, this was no longer an issue; Wave account creation was opened, and any email address could be added to a wave.

Happily, all of these Google-facilitated technologies are freely available, but one more key bit of technology was crucial to the process, and it was not free:

A networked teaching lab: I teach most of my classes in a laptop-based lab, one that allows me to pull the computers out whenever I want to use them and tuck them safely away when I don't. This semester, I decided to use them every day, and invited any of my students who had their own laptops to bring them to class if they preferred working on them.

Once all the accounts were created, I added our Google Group as a contact within Wave, and then created our first class wave, showing the class how to do each of these things as well.

As new participants join them, Waves can be added to in several ways, by collaboratively editing an in-process document, commenting on that document, or replying to a threaded discussion. Wave keeps track of who edited what within a collaborative document, much like Google Docs (in fact, Docs adopted its live group editing technology from Wave), which can help facilitate the assessment of collaborative assignments. Unlike Google Docs, Wave has a playback system that allows a participant to see, step by step, how a document has developed.

Wave brought with it a vast range of features, such as sophisticated formatting, embedded gadgets, and so on, and my students quickly started experimenting with those bells and whistles. For our collaborative note-taking assignment, one student was assigned to be the "lead note-taker" each day, responsible for ensuring that all the basic information was accounted for, and for cleaning up the collaborative notes after class. Everyone was encouraged to add in every day, and most days, everyone did. The group note-taking capabilities of Wave thus received the most use, but the system also became a sort of class backchannel, accommodating a range of side discussions, allowing students to build a sense of community even as they participated in classroom discussions.

Wave's instability produced some frustrations at times, and simply figuring out how it worked was at moments a challenge. At the end of the semester, in conjunction with my course evaluations, I asked my students to assess their experiences with Wave—and every one of them liked it. Several said that seeing their classmates' notes as class discussion was happening clarified

the discussion in process; a few noted that they liked being able to follow the Wave from their dorm rooms when they were sick; many said that they were grateful to be able to return to the notes in the days and weeks after that class session had ended.

As my syllabus noted, I had the idea before the semester started that my students would "finalize" their notes in Google Docs and keep them stored for future use in our Google Group space. As it turned out, however, this did not happen; though extensions that would provide exactly the functionality I had hoped for were made available, I did not find out about them until long after the fact; there was no good source available for information on the many third-party developed Wave plug-ins. As a result, our class notes remained solely accessible in Wave. When it was announced that Wave development had ceased, I began to worry that those notes would disappear; I have now exported them, but the experience highlights the need for portability and preservation of the work that we do with our classes online.

I was hoping that I would have the opportunity to further experiment with Wave in future semesters, but that doesn't seem to be in the cards. My sense at the moment is that I will, instead, substitute collaboration via Google Docs for this note-taking exercise, as Docs now provides a chat function that can support the more informal, backchannel aspects of a group's interactions. Docs also has a robust range of export functions, allowing students to save these notes in the format they prefer. However, Docs's familiar interfaces, such as word processor and chat window, may constrain what students do with the system. Part of what was so wonderful about Wave was how utterly unfamiliar it was, forcing its users to rethink their relationships to the groups with which they communicate, placing the groups' collaborations first. Unfortunately, that unfamiliarity led to Wave being significantly misunderstood, thus preventing the full adoption of the system, which might have facilitated its further development.

[1] See ‹http://machines.pomona.edu/51-2010/›.

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Learning on Mobile Platforms

Jessica Irish

My experience of teaching in the mid-1990s coincided with the early years of the World Wide Web, a new technology that was, by turns, a cause for praise, scorn and worry. What would it become and what would be the cultural ramifications of its pervasive use? Were we indeed headed for the vision of Marshall McLuhan's global campfire, or was the web merely a littered cyberspace of pornography and bad design (Levinson)? Acutely aware of my own inability to maintain a continually updated list of hyperlinks—a typical strategy for "using technology" at the time—I have since maintained that the best initial approach to digital media is to try small experiments. In the fifteen years since, I have heard many people articulate their technological anxieties, describing how they are "behind" the curve. My response is always, "Aren't we all?" One of the valuable characteristics of teaching with new technologies is the opportunity for us all to continually remain students ourselves, testing and sharing best practices for new forms of engagement.

I subscribe to the media ecologies argument that Neil Postman elegantly framed in his book Technopoly: namely, that we cannot easily foresee the impact any given technology will have on culture, as it is always unfolding. It is worth considering the full possibilities as well as limitations of these tools, knowing they are more than tools. Soon enough, tools become methods,

perspectives, habits. Ten years ago, few of the people in my life used a cell phone, though now almost everyone has one. I have only had a Smartphone for a few years, yet in that short time I think of it less as a mobile telephone and more as my "connection thing." It's how I read the newspaper on the subway, write to my family, view our photo album with my daughter or locate something on a map. These are all "old" needs, bound into one "new" tool.

While I do ask my students to turn off their phones in class, many of my favorite ways to use technology in teaching embrace the ubiquity of the contemporary cell phone. Learning happens equally, if not more, outside the classroom, and finding a way to have students begin to use their phones towards their broader learning seems a worthwhile effort. The lens through which I see digital media benefitting teaching and learning is as "part of the network of intellectual opportunities," as Trebor Scholz has phrased it. In particular, I am in the process of testing new ways to use (and design) mobile technologies because these can help structure "out of the classroom" methods of learning, whether focused on "field research" or on making use of the odd bits of time we find here and there. Both tools I describe below are dually powerful on the web and via a Smartphone app. Both offer alternate methods for non-Smartphone methods.

Two digital tools in particular I have found helpful in my classes: Twitter and Flickr.[1] I have used Flickr in the classroom to both share iterations of various visual projects and to document examples of a certain topic, within the inspiring urban environment of New York City. Related to the first method, I've found that when students post their work on Flickr, rather than only within a class blog or account, they will often get feedback from others (usually friends) not in the class. Because this can easily become distracting or noisy, we discuss this idea a bit in class first. I regularly task my students with framing a question they want to receive feedback on before a critique, and I've found that when they do this online, the diversity of feedback is often appreciated, even while it tends to be less critical. An example where Flickr has been particularly helpful is in tandem with research on color theory. Using the Flickr app[2] on their Smartphones, students worked in teams, focusing on an individual color. Each team tried to get the most examples of a color usage within a public context. Every image was tagged, so that it could be pulled into an aggregated view, where we would see all images showing how red is used in the city with attendant descriptors such as "food" or "signage." We considered these aggregated collections as a class, and discussed how our understanding of color theory readings related specifically to what was documented by each student team.

Twitter is one of my new favorite tools, though I think the platform is in dire need of more ways to sort, filter and visualize content. Only recently has this platform offered the ability to sort people or topics into lists, which proves a more helpful way to organize particular topics. Likely by the time this book comes out, there will be a better selection of tools that are available to the public. Described as an "information network" by co-creator Evan Williams, it was originally conceived to relay short missives to a small group (Sarno). That it was designed to focus more on the process of an idea rather than its final outcome is very compelling to me. Rather than present only the final post or article, one can share thoughts along a trajectory: steps in a path, moments in one's day. If Facebook dominates the personal social network and LinkedIn serves the professional network, one can aspire to use Twitter as the Platonic network. In discussing the way that good ideas are nurtured and shared before they are realized in moments of inspiration, Steven Johnson states that "chance favors the networked mind."

By cultivating a "networked mind," Twitter can help to document and share the small, insignificant, often overlooked moments of thought as they happen. Allowing these smaller moments to become a data stream, a diary of inquiry is formed, which can be updated easily on the Web or on one's Smartphone. There are two ways I use Twitter, and encourage my students to use it. First, one can curate their intellectual playground by choosing to "follow" people in the field one finds interesting, whether or not these people are known personally. These people will populate one's Twitter screen with their 140 character "tweets." These could be links, thoughts, shared moments, or questions. Being able to choose anyone (provided they are on Twitter) as part of one's intellectual network makes me think of the question, "What famous/important person would you like to have dinner with?" Perhaps Twitter is not as intimate as a dinner party, but being able to set up one's own conceptual tribe is exciting. When framing this idea to students, I like to ask them what it is they are working on, thinking about, or aspiring to do right now. Keeping a small list of key players to follow will assist one in keeping a certain focus or perspective, assuming one wants to streamline their experience. I've heard this type of usage described as "setting up your own newsroom, where you hire the journalists." This method of using Twitter embraces the concept of chance, finding particular tweets that speak directly

towards things one may be ruminating about or actively researching. One can respond directly to a tweet by "replying" to the author, putting an @ in front of their name. In turn, anyone wanting to respond to me could write something to @jirish.

A more structured, albeit less curated way to use Twitter is to follow particular topics, termed "hashtags," which are designated with # in front of the word. For example, anyone wanting to see what people are saying about the 2009 gulf oil spill could follow the hashtag #oilspill. As this was recently an avidly followed topic, some individuals seized on this approach, such as Leroy Stick, who established himself as "BPGlobalPR," with now more than ten times as many followers as the Twitter account for the official British Petroleum (BP) press releases. In a recent article detailing this phenomenon, Newsweek listed contrasting tweets and concluded that little distinction could be made between the real BP press release content and parody missives (Mascarenhas).

Twitter lists its top topics on its homepage, providing a bit of zeitgeist, though this is generally most helpful when it coincides with an important (or popular) live event. Stamen Design created a visualization tool to aggregate tweets into a visual medium. In profiling of the MTV Music Awards in 2009, each named #artist's name was translated into a visual image of their face (Stamen Design). Jostling on the stage like competitive bubbles, the culminating controversy of Kanye West crashing Taylor Swift's prize reception was visually documented, based on particular terms about which people were tweeting. Designed to complement the TV watching experience, this interface provides a networked backchannel in which to share commentary with friends.

Another preferred approach to Twitter often occurs while I'm attending a conference. I can only imagine how humbling this might be for presenters, as the feeds for a conference are now shown publicly within the space, in real time. Organizers have used this to solicit questions from the audience, as well as make public the backchannel of conversation that arises. While there may be critical comments, I have not witnessed the typically anonymous flames one sees in the comments of various weblogs, or on YouTube. Most conferences now offer a specific #hashtag, which allows one to see which points most directly resonated with the audience.

This last summer, I attended the Creativity and Technology (CAT) Conference and one of the more interesting things that happened during the conference was that women began to comment on the lack of women presenters on Twitter using the conference hashtag #CRCAT (Technology). The previous year, Professor Jo Ann Kuchera-Morin from UC Santa Barbara dazzled the audience with her heady presentation of the Allosphere. This year, there were virtually no female presenters. Women continued to "re-tweet" posts to this effect as a way of underscoring or echoing this concern and, by the afternoon, both presenters and the key organizer felt the need to address the issue head-on. I found this to be a compelling tactic for bringing forth the proverbial white elephant, not an easy thing to do, especially in the context of a 1,000+ person conference. There have been instances where this form of backchannel communication has crossed the line of civil discourse, as documented in danah boyd's account of her own presentation in the Web 2.0 Expo. Ironically, her talk was very much about the challenges of these nascent technologies in providing useful contexts for social media streams. More often though, salient points of a talk or conference can indeed be effectively communicated as Twitter "diaries" of the event become shared note-taking, allowing others to tune-in or follow along while not necessarily in attendance.

The brevity of Twitter forces us to make the most of the limits of 140 characters. Many have argued this is simply too short a format to say much of interest. I disagree. One colleague uses it specifically to refine the craft of writing one sentence, shared amongst fellow writers. Another uses it primarily to share links: news, articles, images, etc. Less is more here, as the main objective is just to have new, relevant items on one's radar that might not necessarily have been accessed within the broader framing of traditional new media.

Twitter can be a great way of documenting an experience: a trip, a project, or a quest. Open-ended documentation invites the notion that a particular end is not inevitable, seeking new possibilities for professional design challenges as well as personal interests. Currently, I hold two different Twitter accounts: one for professional/design-related items and one for my 3-year-old daughter who says hilarious stuff everyday (I do the typing). I like that this is a simple way of documenting/sharing her missives, as they happen, with her five family followers, either from my phone or laptop, and I intend to archive these in a better form as time goes on.

Assignments

Below are a few ideas for specific assignments using Twitter in and out of the classroom:

Attend a talk, lecture or conference. Take notes using a given or custom #hashtag that you share with our #class. Ask the presenter at least one question (@presenter).

Cultivate a research practice. Curate whom you follow along a particular line of inquiry and make it a daily habit to share one question, idea, piece of information, or link. Add a #hashtag if there are related topics that might be of interest to others.

Select a research topic. Decide which data you will collect and tweet findings with a specific hashtag. Invite key peers or faculty into your data stream by re-tweeting a post (RT) or reply to a specific post (@author) and see if you get a response.

Look up a compelling author, designer, curator, journalist or practitioner on Twitter. Pay attention to how others show up in their data stream, as some of their active followers may also be interesting to you. RT some of their posts to a friend (@friend) to share a tweet, or comment.

In each of these suggested uses of Twitter, I argue that it is equally important to augment the practice with a weblog to capture visual and long form writing, as well as in-class discussion and presentation. I use the course blog to document more formal projects within the course, and have students respond to questions I pose related to material reviewed in class. Written response essays are also posted on the blog, which allows students to read one another's writing and comment as well.

Within design programs, there is a need to build core requirements for students to learn how to create interfaces that may shape and extend the power of these tools, rather then using them only as consumers. All first year Design & Technology students at Parsons learn Processing,[3] a simplified yet powerful open-source software built on Java to learn computational basics that can translate into other more specific programming languages such as C++. They must also learn core web/interaction technologies and most importantly, critical thinking and design process. As Douglas Rushkoff writes in his book Program Or Be Programmed, "Instead of learning about our technology, we opt for a world in which our technology learns about us." While embracing small spaces (or 140 characters) which can enliven and extend our learning environments, we should not be afraid to note where these might limit or fail us, thereby inspiring or reinventing alternative tools.

[1] See ‹http://www.twitter.com›; ‹http://flickr.com›.

[2] See ‹http://flickr.com›.

[3] See ‹http://www.processing.org›.

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Mobile Learning Tools
A Teachable Moment in the Age of the App

David Carroll

Watching my two-year old figure out my iPhone demonstrates how young people can learn a well-developed sense of computer literacy well before mastering language skills. Consider how this moment's generation of children has been born into an ordinary world of touch screen mobile computers that connect and inform us constantly, perhaps even compulsively. Only adults seem to marvel at mobile features like video-chat. For toddlers, our romantic future is their ordinary present. This new digital mobility shifts us away from a synchronous and simultaneous sense of shared place and time (e.g., the classroom) towards an asynchronous, discontinuous and individualized consumption of software (e.g., "an app for that"). These new tools engage us all in various contemporary projects of shareable knowledge, hyper-connected communication and collective cognition. Our own constantly connected mobile device puts nearly infinite information at our fingertips in a dematerialized, timeless and placeless context. Strangely though, the fruits of this placeless and timeless mobility shift yield a seemingly tactile media (e.g., multi-touch) for chronological (e.g., blog) and geo-locative (e.g., check-in) tendencies.

Education tools and platforms designed specifically for mobile devices are nascent or altogether non-existent. However, educators from both formal and informal institutions, such as schools and museums, are demanding

high-quality teaching and learning tools that exploit digital media rather than resist it. They recognize how urgently education needs to adapt to the conditions of mobile media as a disruptive change agent against time-tested methods and practices (e.g., the classroom, the after-school program). In particular, educators seek free and open-source platforms designed for mobile learning. The ecology of mobile devices, carriers, operating systems and applications ("apps") favors commercial infrastructures and proprietary licensing models. Mobile platforms can be touted as open, but even a cursory read of legal agreements complicates that assumption. The platforms that are truly open-source serve a fringe population and fail to earn the market share needed to attract producers and consumers.

Despite all the attention that mobile media enjoys as a humanity-shifting, social force of technology, when we look beyond the threshold of the desktop (and laptop) model of computing, we find a hyper-fragmented realm of incompatible, expensive and competing "standards." Yet our "always-on" pocket computer compulsively shifts our attention away from the desktop browser model of full-attention span, cursor-driven, general purpose interfaces in favor of partial-attention, embedded, nearly invisible, direct-manipulation interfaces for specialized and distributed functionalities. Briefly exploring the crises and opportunities of these mobility shifts, this article will assess the mobile learning tool 7scenes[1] and offer some advice and best practices for using mobile learning tools. The article will also depict the current condition of commerciality as a significant impediment to transposing assumptions about the "desktop" standards-based Social Web, instantiated on the wired Internet, to a mobile equivalent.

The wired Internet was born out of public-interest institutions including the US military and university system, conceived as an open protocol and model that did not require commercialization to proliferate. In the 90s, public resources were monetized to privatize the Web. The Aughts (2000s) brought us the Social Web, a shared awareness that everybody is online. All along, the browser itself has been an open-source participatory design project not directly driven by monetary profit. Non-commercial standards bodies continue to govern arcane specifications like HTML5, defining how web browsers publish media. As evidence of a mobility shift, this committee-designed platform is poised to make a *de facto,* commercial "standard" like Flash obsolete, as the free market favors alternatives. Mobile media now segments across an inconsistently supported mobile Web and a franchise model of device dependent mobile app chain stores. This split may characterize The Teens (2010s) when the browser untethers and yields to a strip-mall inspired mobile app economy.

The success of the wired Internet inspired this demand for equivalent wireless services as a mobility shift. Now we carry the affordances of the desktop Social Web with us while we live, work, and learn. As a result, do we still need the occasion of a class and the convenience of a room to establish a site of education? The rise of online universities suggests otherwise. Some claim that the desktop-based Social Web has served as a mere "dress rehearsal" (Fogg) for the transformative capabilities that surround hyper-connection and mass exchange of digital media across mobile devices and networks. In the developing world, at least, huge populations will skip the adoption of the conventional PC altogether. Industry trade group CTIA expects 5 billion global customers in 2011 and already services 80% of the US population (CTIA). Meanwhile, educators are left to surmount a daunting set of impediments to establish rigorous teaching and learning into the practice of a fully socialized ubiquitous mobility.

A brutal criticality regarding the nature of this industry and how it invades all dimensions of our daily life ought to frame our approach as educators, theorists and makers when we consider mobile media and learning. We cannot opt-out of the marketplace's lucrative and growth-oriented business model to sell supply of wireless Internet access and monetize the exchange of virtual commodities. This pessimism deflates expectations and offers a reality-check for us as we remain astonished with our still new, constantly connected mobile computers that we stroke with alarming intimacy.

All the world's knowledge appears at our fingertips. An itching question is figuratively scratched on a digital pocket pad. These scratch-an-itch movements instantly summon the "cognitive surplus" (Shirkey) sourcing the "wisdom of the crowd" (Surowiecki). Do these everyday, partial-attention-span knowledge queries *in situ* constitute substantial learning opportunities and teachable moments embedded among casual and synthetic references?

We used to sit in front of the computer or printed matter to conduct our work generally confined to stationary circumstances. When you're on the desktop Social Web, you sit at a wired desk in a literal and performative sense. Even with portable media like books, papers or laptops, working

occupies hours and minutes rather than mere seconds of concentrated attention. By contrast, mobile media is consumed and produced in motion. Now the computer sits in front of us, miniaturized to fit in our hand and pocket, sporting a direct-manipulation interface that channels our cognitive energies into instantaneous gestures that lead to a sense of belonging to something transformative.

For my students, a mobile pedagogy involves redirecting their perceived need to learn a particular platform to reach a determined audience as merely a skill set to include on an résumé towards more product independent approaches that instead question the impulse to make an app without a thoughtful examination of how creativity, utility and mobility intersect in the social, everyday and commercialized context of using a mobile device. What are the risks and rewards associated with going mobile into a realm that is always at the ready, but also, always on the grid? When we tap "the wealth of networks" (Benkler) with our mobile for learning, do we entangle our social relationships as a currency and feed the for-profit marketplace for a surveillance-security industrial complex?

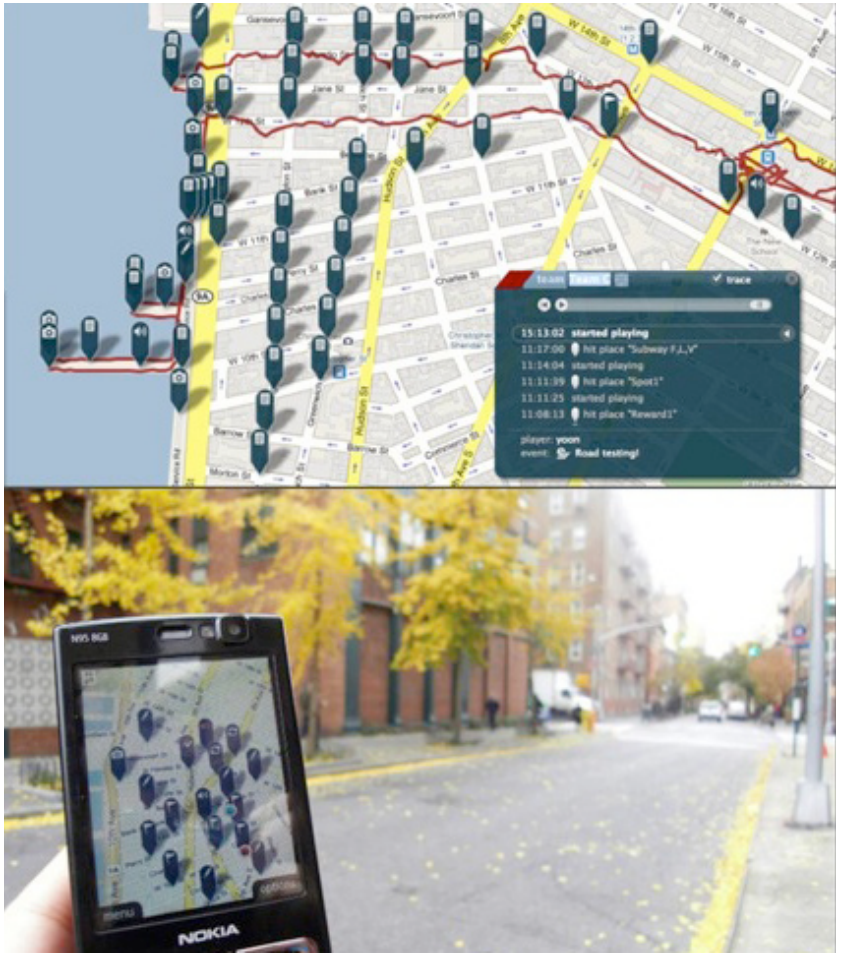
One recent example of educators grappling with these mobility shifts is the MacArthur Foundation and its New Youth City Learning Network[2] project in New York City. NYCLN can serve as a visionary model of building institutional infrastructures around the mobile device and the Social Web to foster "free-range learning" and discovery of the city as an open laboratory. NYCLN's partnerships between cultural and learning entities such as museums and libraries along with primary, secondary and higher education schools engage city youth with mobile learning tools towards fulfillment of their potential roles as citizen scientists, journalists, activists and designers. Under the auspices of the Social Science Research Council, but within my school of art and design between peer faculty and graduate students, some early demonstration projects were developed over the summer of 2010 for institutional members of the learning network, including the American Museum of Natural History, the New York Hall of Science, and the Cooper-Hewitt Design Museum. This is a mere oversimplification, and I won't go into detail on these intricate relationships and projects. Instead, I will describe the pedagogical implementation of using a commercial and proprietary mobile learning platform called 7scenes.

Even though this book tries to avoid closed systems on principle, two reasons justify breaking this rule here. Few open-source learning platforms exist for iPhone or Android, or at least among those I have rigorously evaluated. Kurt Squire's ARIS[3] platform from University of Wisconsin-Madison is notable for being open-source and could have been the subject of this article. However, it was not a robust and finished product at the time when we were considering tools for our learning network projects during the first quarter of 2010. By the end of the year, ARIS had significantly matured and will be carefully considered by the New Youth City Learning Network moving forward. Another alternative to 7scenes, SCVNGR,[4] is well financed by venture capital but also is not open-source. In contrast, 7scenes is a spinoff commercial product that was incubated at the Waag Society of the Netherlands through its Locative Media Atelier. These early public-interest roots reveal a not-for-profit ancestry that ought to earn our attention given the limitations of the marketplace for mobile learning, in general.

7scenes is a location-based storytelling and urban game design system that combines a desktop web-authoring environment with a companion mobile app to play "scenes" by triggering and interacting with mobile media and activities at real place-markers. The web-authoring environment, built upon Google Maps, first prompts the scene's "director" to choose among predefined game or location-aware interaction design patterns, called "genres" in platform jargon (e.g., Secret Trail, Mystery Tour, Field Research). Directors then build mobile media driven narratives or interactions by dropping place-markers on maps and associating multimedia elements within the constraints of the selected game or interaction mechanic.

Mobile apps are available for free download to Apple iPhone, Google Android and certain Nokia Symbian Series 60 devices. Once a scene is designed on the web interface, it is scheduled to invite mobile players, who usually gather as an organized event (e.g., festival, field trip, after-school program) equipped with GPS and mobile broadband-enabled phones to experience the narrative or game by moving through actual space. Conceptually, ARIS and SCVNGR are very similar offerings. These tools are being updated and developed faster than we can write and publish about them.

Even though 7scenes is probably one of the most usable platforms on the market, our experience revealed the challenge of designing a highly usable mobile platform for both the production and consumption of experiences. Despite being based on familiar interactions with web browser form elements and drag-and-drop geographic maps, we observed learners who struggled to



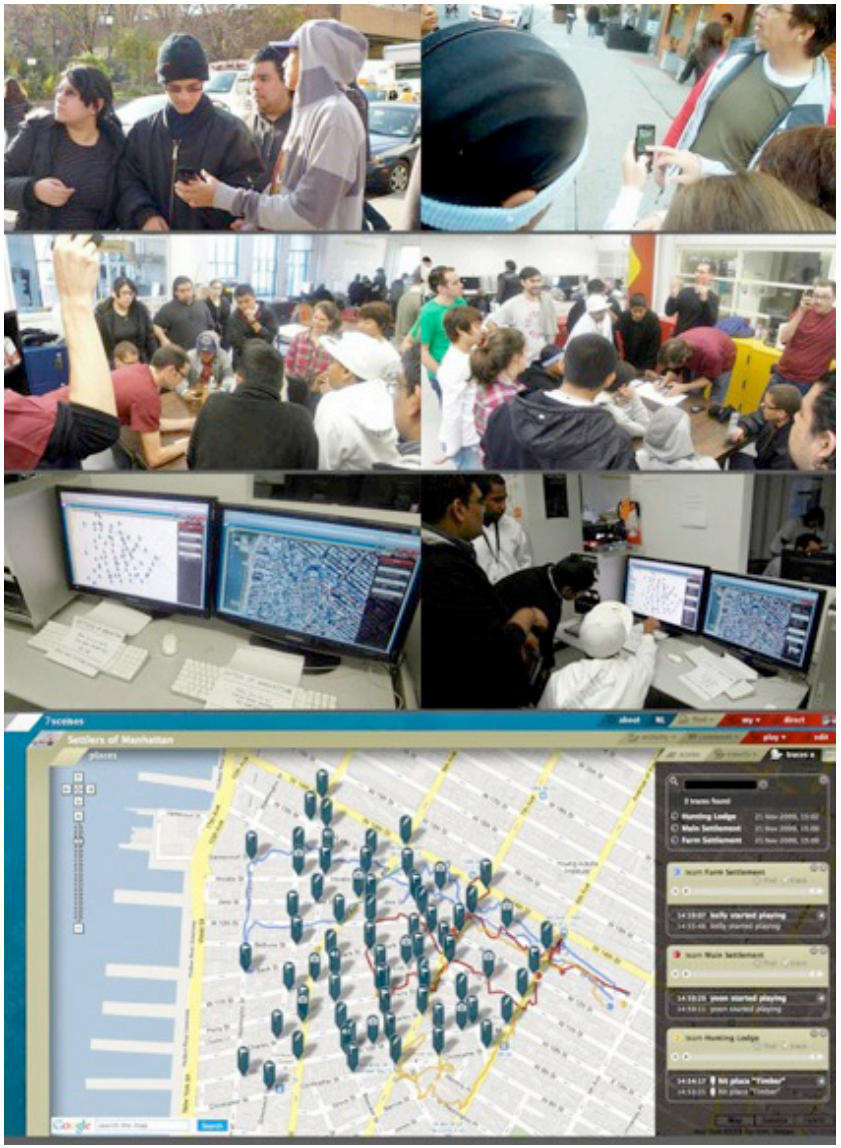
grasp the jargon of the platform, the principles of game design, the manipulation of media, and the process of prototyping a location-based narrative or game while learning 7scenes as a tool. Teaching with this tool necessitates transdisciplinary design thinking towards labor intensive and well-planned content development.

The 7scenes model clearly attempts to establish a rigid framework to exploit constraints as a means of generating expected outcomes. This helps contend with the unfamiliarity of designing stories and behaviors for location. The alternative is a wildly open model, such as Foursquare, or Twitter geo-location, both of which impose different constraints including radical multi-purpose and an imprecise signal-to-noise ratio. Social Web companies design their software to scale their user base to massive quantities. Casting a wide net by offering general-purpose tools builds this market share. At least platforms like 7scenes, ARIS and SCVNGR are expressly designed for locative games and narratives at the service of teaching and learning. These narrow-purpose tools begin to mitigate the challenge of deploying "free-range" learning in designed learning situations across a fragmented ecology of commercial mobile device standards often filtered through radically open but privately owned social networks. Specialized locative education tools also present their own impediments, commercial dependencies and "features—not bugs." General-purpose locative platforms involve less labor because they are generative and computational but bear the cost of forfeiting predictable, assessable and secure outcomes.

When designing social and mobile apps for young adults and children, significant legal requirements in the US (e.g., COPPA: Child Online Privacy Protection Act, 1998, 15 U.S.C.; FERPA: Family Educational Rights and Privacy Act, 1974, 20 U.S.C.) prevent the use of publicly available services on open but private networks like Twitter or Foursquare. Protecting student and faculty privacy should be an ongoing concern for educators to find US and EU compliant tools. Systems like 7scenes, while laborious to learn and deploy, support the need to create safe havens for young people that limit access to credentialed participants with business models that don't involve ulterior motives. Entering usernames and passwords on mobile phones is annoying. Needing to designate elements as public involves additional layers of software bureaucracy to finagle. However, the conspiracy of privacy concerns related to "open" services is probably a more insidious issue for teachers and learners. The learning tools created with location aware mobile devices inherently gather extremely sensitive private but shareable data.

While working with the institutional members of the New Youth City Learning Network[5] we grappled with the instinct of their education departments to invent new mobile media paradigms that aligned closely to their existing curricula. For example, a science museum expressed little interest in 7scenes as a platform because (at the time) it did not offer a "field research" modality. Museum educators sought mobile learning tools that adapted a field research notebook model for location-aware Smartphones. These science-oriented educators resisted proposals to use 7scenes given its historical storytelling and trading game models, unwilling to unwind their understanding of the

observational (not reflexive) practice of science. By contrast, a cultural history museum was more open to 7scenes because its premise fit more naturally into its existing programs, services and constituencies. However, all struggled with multiple layers of usability and reliability across mobile and desktop operating systems, the learning tool kit, overhead of support staff and the quality of the mobile network itself.



When institutions collide, learning occurs. Opaque hierarchies need to cross-navigate to work in collaboration. The drive to make and use mobile learning tools and Social software forms an impetus to suddenly form multi-institution learning networks. But these public-interest institutions have wired Internet needs and expectations yet shall be at the mercy of the wireless Internet and mobile media establishment—entrenchment meets trade secrets. The challenges for teachers and learners to adopt mobile learning tools are immense because they intermingle public-interest establishments and privately owned concerns more porously than ever. In response, I offer some best practices toward a real pedagogy to learn from my mistakes.

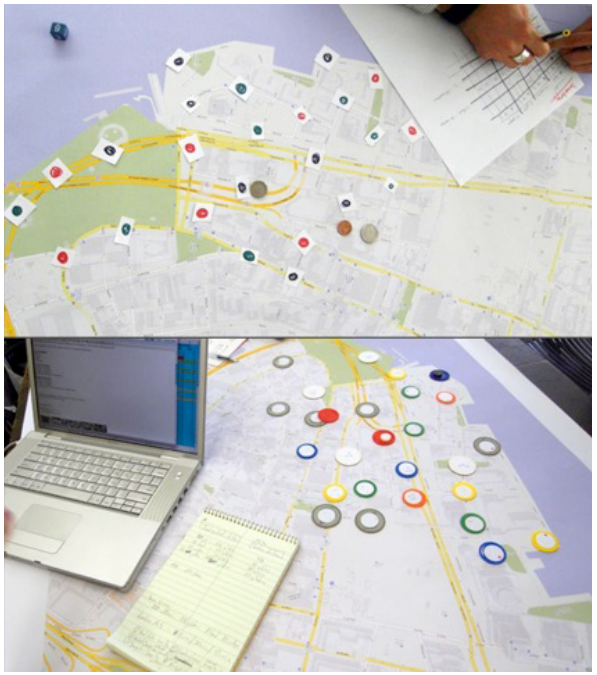
When exploring possible tools to propose to partners, begin by introducing the offerings of the marketplace and categorize them based on how they compare on a spectrum of specific to general purpose according to their flexibilities and constraints. Conduct design charrettes and play-test workshops to cultivate stakeholder consensus around tools rather than outsourcing the decision to the experts. Unfortunately, most people will understandably relish an opportunity to design a new mobile software tool from scratch without any sense of what goes into that endeavor. The mobile media industrial complex suggests through its advertising that making apps is the easy part while glossing over the actual full-time occupations that labor on the processes of software and its infrastructures.

Regardless, tackle as many aspects of mobile learning tools as possible. Build teaching activities around both the attractive and repugnant qualities of mobile learning and Social media. Make paper prototypes and perform the proposed interactions with rough props that equip actors in a scene. Act out the gestures of mobile learning in actual situations. Pretend with a cardboard cell phone in public. Channel your former toddler self. This all helps inspire and fulfill that instinct to invent a great new app. Exploit that latent creativity in all of us, as inferred by the Smartphone ad campaign that markets a branded notion of designing apps as genuinely human to saturate a for-profit marketplace. Despite and because of this, paper prototyping also creates the context to demonstrate some of the complexities of software design and the mobile marketplace for creators and consumers alike (e.g., geoliteracies as map-making and sense-making, game design as systems thinking, storytelling as narrative strategies, solving technical and legal hurdles as geeking-out). To further your study, the MacArthur Foundation funded articulation of youth and digital media as “hanging out, messing around and geeking out”

serves as a definitive voice in adapting our thinking to the impact of new kinds of literacy (Ito).

Finally, implementing mobile technology tools into curricula is more difficult than desktop web-based tools because the industry enforces individual ownership of devices, complicating the purchase of devices and service plans. Carriers are failing miserably at offering alternative contract agreements for the education market where a middle ground between pre-paid and contract post-paid is needed. Schools have equipped themselves to manage fixed labs and the near-obsolete notion of a desktop computer. No bureaucracies exist to manage loaning devices to faculty and students with active service plans. Because there are no free, interoperable, public mobile services, educators should never assume their learners would arrive equipped to access a mobile pedagogy. A tremendous amount of energy, time and financial resources are wasted attempting to mitigate this regrettable market failure on the part of service providers, device manufacturers and software purveyors.

These kinds of mobility shifts more fully resolve when a variety of open learning tools are accessible to vast constituencies. We ought to move beyond ad hoc funding and support. This will involve attempts at disentangling public and private interests more thoughtfully and enshrine mechanisms that espouse the values of the original wired Internet as we shift and commit to wireless-ubiquitous computing more completely. When we aren't so preoccupied with reconstructing chronology on news streams, reinforcing a sense of place on geographic maps, and re-materializing interface with multi-touch, we'll know the shift itself is history. In the meantime, educators need the community to donate labor to open-source tools. Governments could design public-interest profit incentives (e.g., tax breaks, community access funds, discount subsidies) so carriers and manufacturers donate plenty of bandwidth and devices to non-profit learning institutions.



[1] See ‹http://7scenes.com›.
[2] See ‹http://newyouthcity.org›.
[3] See ‹http://arisgames.org›.
[4] See ‹http://scvngr.com›.

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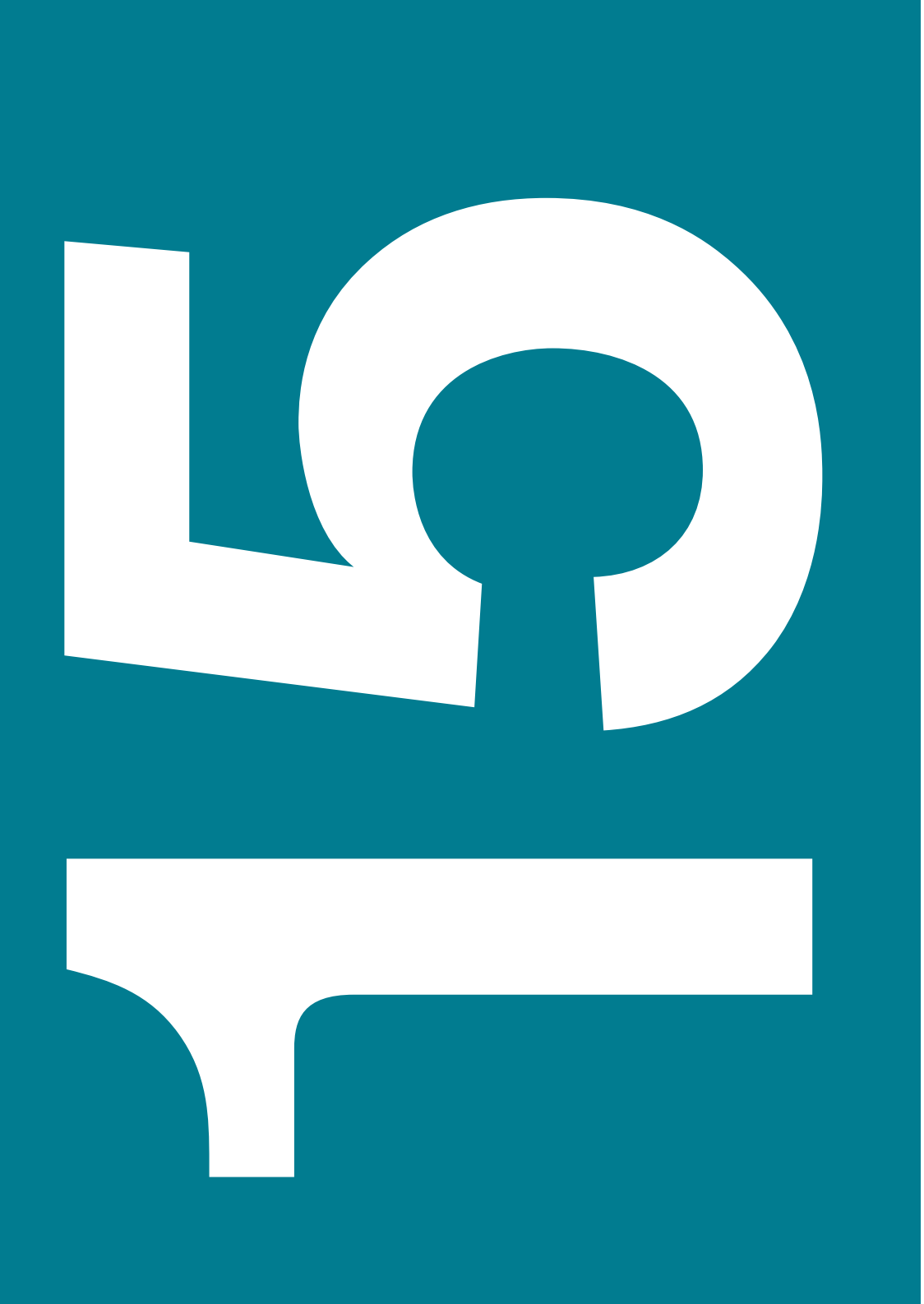


Teaching and Learning with Omeka

Discomfort, Play, and Creating Public, Online, Digital Collections

Jeffrey W. McClurken

Pedagogical Practice and Digital Media

A student walked into my office a couple of years ago and said to me, "Dr. McClurken, I'm really struggling with all this online stuff," referring to the digital history projects I had assigned to the students in my "History of American Technology and Culture" course (McClurken et al., *A History of American Technology*). She explained that digital projects were unfamiliar to her and that she was uncomfortable with her ability to do the assignment. She was surprised when my response to her discomfort was, "Good." I went on to explain that I wanted her and her classmates to push the boundaries of what they understood about the conceptualization and presentation of historical information beyond papers and tests. Though she struggled a bit learning the tools we were using that semester, she later sent an email thanking me for introducing her to new methods of approaching history with the subject heading, "From Antipathy to Appreciation."

Much of my pedagogical practice regarding the use of digital media emphasizes student-generated, online, creative and public digital conversation and project creation. When teaching with digital media, my approaches stem from pedagogical, theoretical and practical goals, many of which challenge traditional teaching practices in educational institutions and push students

out of their comfort zones.[1] Ultimately, I want students to be capable of critically using and producing digital media themselves.

The notion of students creating and writing for a public audience is a key part of this approach, which has clear benefits for the students, the teacher and the institution. I'm particularly interested in opening up the traditional, closed system of knowledge production by which student products (such as papers or projects) go only to the instructor to be graded, after which the student views the instructor's comments, and then no one ever looks at the material again. By making their work and words public, students learn to write for an audience of more than one.[2] They also learn to learn from each other. Further, what they are creating has the potential to be lasting and important. In a broader sense, making students' work public allows faculty and institutions to be transparent about what it is we do in the "ivory tower" of academia.

Digital media projects offer students the opportunity to be creative in their approaches to conceiving and presenting information. Rather than the static text of student tests and research papers, these projects can be dynamic, cross-media, innovative and new, while still adhering to rigorous standards for citation and scholarship. In my classes, we are focused on new ways of making available and presenting historical information, but the concepts extend equally well to other disciplines.

One challenge that we face as instructors in a digital age is the notion of "digital natives," a term much bandied about in education and the media to describe students today as somehow intuitively knowing how to use digital media (and technology more generally). I would acknowledge that there are differences in growing up in the digital age (I know a 3-year old fully capable of navigating my iPod Touch despite not yet being literate), but we need to acknowledge that for many (most?) students, their digital abilities tend to be fairly narrowly-focused (e.g., on Facebook, texting and the first page of Google Search results). For those students, their involvement with digital media tends to be consumptive rather than productive. Another problem with the notion of the digital native is that it risks letting teachers off the hook from teaching with digital media because of some notion that students already know how to use it (or, even more scary, that they know it better than we do or can).

Pushing students into other forms of digital media creation and consumption can be unsettling to them. That's good. I want students to be "uncomfortable, but not paralyzed"[3] because it is often the case that real learning comes with a bit of struggle. Many students could write a (bad) 7-10 page paper in their sleep, but scholarly digital media projects move them out of their comfort zone in ways that are useful for deep learning.

I believe that student creation of digital media projects also encourages the development of new literacies or fluencies. This act of construction provides not only opportunities to create knowledge (more than "just" learning), but also provides students with experiences necessary to be better consumers of information generally (what some scholars describe as information literacy or digital fluency). In addition, the act of creating such projects also builds visual literacy, as well as an appreciation for the importance of visual aesthetics (this after years of telling students that the paper binder doesn't matter, it's the content that counts). Well, even those of us in text-focused disciplines have begun to understand that the binder (presentation/form/interface) actually does matter, at least somewhat, in digital products. Broadly stated, I would argue that these literacies must be central to our expectations for undergraduates, joining critical thinking and reading, the creation of original ideas, the deployment of evidence to support one's arguments, and the ability to present those arguments in sophisticated forms.

I structure digital media projects in a way that emphasizes a general fluency with digital media, making students more marketable and better prepared for the workplace of tomorrow. A focus on adaptability is a key trait in the current and future labor market and digital world. It is not my goal that students learn a particular program or piece of software. Just focusing on a single tool (or even a particular canon of tools) is ultimately not very helpful if the tools are likely to change significantly in 12-24 months. Software and hardware obsolescence is simply a reality in the digital media world. Therefore, it is a willingness to play, to learn new tools, to evaluate the needs of the situation and the tools available that is a key goal for my students. So, too, is the ability to play well with others, so I build in structured and unstructured academic communication with others in and out of classroom, including, but not limited to, formal group work.

For me, then, teaching with digital media is part of a pedagogical process in which I encourage students to write, create, and build for a larger audience than the classroom. The process is intended to challenge the traditional product of the classroom. It acknowledges, even embraces, the ephemeral

nature of digital media tools while encouraging students to think about their work as lasting beyond the semester. Finally, it works to create opportunities for students to become "critical practitioners" of digital media rather than passive consumers or users.

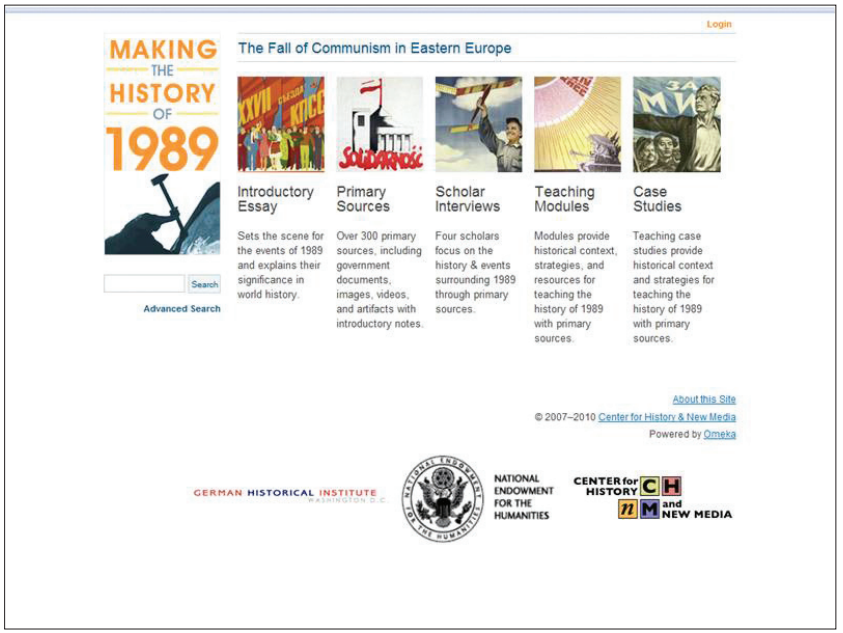
Omeka – An Introduction

Omeka is an open-source, free, web-based publishing tool that is both a digital repository and a resource for building online exhibits.[4] It allows users (ranging from individual researchers/teachers/scholars to libraries, archives, and museums of all sizes) to catalog and share their collections of documents, images, and videos in any number of ways. Created by George Mason University's Center for History and New Media[5] to be used easily by non-programmers, it is also flexible and powerful enough to meet large institutional needs. Omeka lies at the intersection of several types of tools, including basic web-publishing systems, digital repository systems, and collection management systems (Scheinfeldt).

Though the basic installation of Omeka software on a server is easy enough to manage ("Omeka | Omeka How To"), there is an option now which removes that step as well. CHNM recently announced Omeka.net, a version of Omeka that CHNM will host. While there are paid versions of the hosting service, a basic account is free.

After installing the Omeka software on one's web server or after setting up an account at Omeka.net, adding items to the digital repository is as simple as filling out a form with the relevant metadata (information about the object) and finding the object (born digital or digitized) on the computer to upload it.[6] Once in the repository, Omeka's built-in templates[7] make it easy to begin to build online exhibits that use and reuse those items as often as desired. A growing list of plug-ins[8] allows for a variety of additional capabilities to be added to an Omeka installation, including enabling the public to add items to a digital repository (Contribution)[9] or identify favorite items in a collection (MyOmeka),[10] as well as a variety of tools to import, export or manipulate content. Though building a basic site, especially on Omeka.net, is quite easy, tapping into the higher levels of complexity in Omeka will require some basic skills in the web-programming languages of CSS, HTML and PHP.

An upcoming feature is Omeka Commons, an IMLS-funded project that will enable the option of adding the contents of an Omeka site to a centralized



Making the History of 1989.[11]

repository for backup and federated (centralized) search. The Commons will provide Omeka-based projects with greater security and visibility, while allowing researchers a way to search across many collections (Leon).

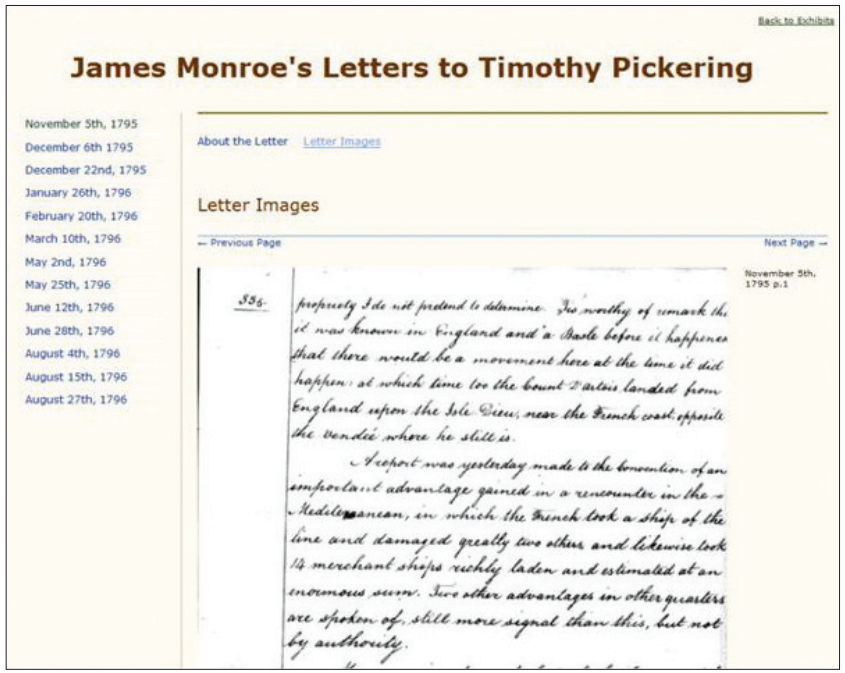
Examples of exhibits built on Omeka can be found at the Showcase page and the development team details a number of ideas for using Omeka with specific examples ("Omeka | Showcase"; "Omeka | How Might You Use Omeka - Omeka How To").

Teaching and Learning with Omeka

I've had students use Omeka twice as part of a junior/senior undergraduate seminar on Digital History (McClurken, *Digital History*; McClurken, *Adventures in Digital History 2010*) at the University of Mary Washington.[12] In both cases I didn't require students to use Omeka, but introduced it as one of a variety of tools from which students could choose for their digital projects.[13] The following advice is based on those experiences and conversations with other professors who have used Omeka in their courses. Most of these lessons take the form of decisions you should make before using Omeka in your classes.

First, be sure that you need to use Omeka. If you're looking for students to write some content, put a few pictures up and call it a day, don't use Omeka. It would be overkill (and frankly, something like WordPress[14] would be more flexible and have less technical overhead for the students and you). Omeka is best suited for projects that involve a sizable digital (or at least digitizable) collection that would benefit from being stored as an archive with metadata (rather than just a single static exhibit). A good example of a student project that works well with Omeka is one done by my students using letters written by James Monroe to the Secretary of State when he was Minister to France (deGraffenreid et al.). It's a project with numerous images and text, lots of metadata and tags, and a clear structure that lends itself well toward Omeka's exhibit templates.

Second, structure the assignment and the students' involvement with the technical details of Omeka based on what your goals are for the students. Those goals should affect your decisions on whether students set up their own domains, download and install the software themselves, build the architecture, add plug-ins, edit templates, and so on. One colleague wanted students to learn every aspect of creating an Omeka site and so she had her students set up their own Omeka installations on their own hosted accounts. In my classes, I was interested in a balance between each student



James Monroe Papers Site.[15]

learning technical skills and making progress on a group project over the course of the semester. I turned to one of our instructional technologists to set up Omeka installations (with relevant plug-ins) on our department's hosted account for each group that wanted to use Omeka as their main platform.[16] Each group of students chose (and edited) their own templates, created their own repositories of digital items and built their own exhibits. The upside is that they were able to jump right in on their digital projects by the time they had their basic planning done. The downside is that they didn't get to experience that process of installation. It also meant that when some groups were dissatisfied with the Omeka template choices, they didn't have the skill set themselves to create new ones (though a couple groups played around with the underlying code until they could make some basic changes they wanted). Still, I found that when students did not create their own installations, they were better able to concentrate on building a structure and content base for their projects. If you have concerns about installing Omeka, look into the Omeka.net option.

Another key decision is between group vs. individual projects. Again, it depends on your goals for the students and the course. In my experience, I have found that it is easier to do substantive Omeka projects in groups, but there is the risk that students in a group will gain different levels of technical expertise in the tool involved. If that is a concern, then you might consider assigning individual projects.

Expect to provide more technical support for Omeka-based projects than for blog-based or Wiki-based projects. Think about the number of students you'll be supervising, how much direct help you can give them, what your teaching and learning technologies support infrastructure is, and how much you're comfortable with them struggling a bit to find a way to construct their digital repositories and exhibits. On the last point, remember that struggle can be a productive part of the learning process.

Plan on having extended discussions with students about how they will use their Omeka repositories and build their exhibits. Conversations about the differences between "items," "collections," "tags" and "exhibits" are not just technically oriented, however, but are fundamentally about the way information is structured and best presented. I have found the lessons learned here go far beyond using Omeka for my students because they deal with questions of information organization, management, retrieval, and presentation. In grappling with how individual "items" fit into larger "collections," how those "items" are "tagged," how those "items" are then presented in "exhibits," students gain an understanding of the ways that scholars approach, contextualize, and interpret sources. Omeka is also incredibly powerful in creating metadata for each item in the repository, so you should also decide how much time you want to focus on the creation of standardized and complete metadata.

Consider copyright and publication rights issues related to making archival sources available. Think about how you and your students will deal with primary source materials ahead of time. In my case, I found materials for students before the semester started that were in the public domain, or had already been cleared for publication. The upside is that copyright was less of an issue (though one we still discussed). The downside is that it shaped their topics.

Take advantage of the terrific how-to videos and documentation[19] from Omeka and advise students to use the forums to find answers to their questions. There is an active community of developers and users of Omeka, and, in my experience, it is a very friendly and helpful group.

Using Omeka is not a decision to be made lightly, but in the end the time spent preparing and guiding students is well worth it. Students can create some impressive projects using this tool. (For example, Tona Hangen's undergraduate students at Worcester State College have created Digital Worcester.)[20] In working with Omeka, students learn a wide variety of skills—digitization, organization, presentation, exhibition, metadata creation—along the way, skills that go well beyond those employed in writing a traditional research paper. In creating public, online, digital collections, students contribute to a larger academic discourse, learn what it means to be an historian, and gain an appreciation for how knowledge itself is construction and presented.

[1] Note that I don't believe that everything in the classroom should be changed to digital media-based work. There will continue to be an important place for traditional pedagogical methods done well, and not all projects, assignments, or disciplines lend themselves well to digital media projects.

[2] Although I do offer students the chance to use a pseudonym online, all but a few have been comfortable with associating their own name with their work.

[3] The phrase "uncomfortable, but not paralyzed" is something I often use with my students to describe where I want them to be when using new tools, concepts, or approaches. For more see McClurken, "Uncomfortable, but not paralyzed."

[4] For the Omeka site, software, and support, see ‹http://omeka.org›. For more detailed descriptions of Omeka's features and options, see Meloni; "Omeka | Project". Started in 2007, the project has received funding from the Institute of Museum and Library Services, Sloan Foundation, and the Samuel Kress Foundation.

[5] See ‹http://chnm.gmu.edu›.

[6] Metadata is data about data, or the information about an object that helps to identify it, including creator, date of creation, type of object, etc. Omeka makes it easy to follows an archival industry standard format for metadata, known as Dublin Core ("DCMI Metadata Basics"). The term "born digital" refers to materials such as blogs, websites, social media, and email that have always been in electronic form (as opposed to "digitized" materials such as print materials that have been scanned or captured electronically).

[7] See ‹http://omeka.org/codex/Themes›.

[8] See ‹http://omeka.org/add-ons/plugins/›.

[9] See ‹http://omeka.org/codex/Plugins/Contribution›.

[10] See ‹http://omeka.org/codex/Plugins/MyOmeka›.

[11] See ‹http://chnm.gmu.edu/1989/›.

[12] Much of this section comes from McClurken, "Teaching with Omeka." That piece was written with lots of input from two people, Amanda French, who taught Omeka as part of a public history graduate course at NYU, and Jeremy Boggs, Creative Lead at CHNM, who used Omeka in a graduate class in history as an adjunct professor at American University. This section continues to be greatly indebted to them.

[13] In this class, students work in groups throughout the semester to produce different online resource projects about various historical topics related to my school or the surrounding areas. Students are exposed in the first four weeks of the semester to a variety of online and freely available programs or services as part of a "digital toolkit" from which they could choose the tools most applicable for their particular project. Working with broad guidelines for their topics, in the fifth week each group creates a contract with me about what their project would look like and what tools they would use. Overall, groups have either based their projects in CHNM's Omeka (deGraffenreid et al.; Milner et al.) or in WordPress (Biddle et al.; Arndt et al.).

[14] See ‹http://wordpress.com/›.

[15] See ‹http://projects.umwhistory.org/jmp/›.

[16] We currently use Bluehost, but there are plenty of others to choose from. Going forward, I will have students create their own free accounts at Omeka.net.

[17] See ‹http://projects.umwhistory.org/jmp/about-site/› for an excellent description of how the students working on the James Monroe Papers Site defined and used Omeka's items, collections, exhibits, and tags.

[18] It may be helpful to point people to the Dublin Core Usage Guide, as Amanda does for her students. See Hillmann.

[19] See ‹http://omeka.org/codex/Documentation›.

[20] See ‹http://www.digitalworcester.org/›.

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Teaching with Google Docs, or, How to Teach in a Digital Media Lab without Losing Students' Attention

Abigail De Kosnik

Google Docs is an example of "software as a service," a document-sharing, cloud computing[1] service. Unlike most document-sharing services, Google Docs does not require any user fees. Google Docs allows people in different locations to collaborate on documents, presentations, spreadsheets, and forms. All files are stored on the Web, in the Google Cloud, rather than on individual hard drives, and any editor or viewer of a file can add other editors or viewers, so a number of collaborators can make changes to a file without having to e-mail each other updated versions. Google Docs is like a free version of Microsoft Office that lives online, with files that can be opened and edited on any computer with Internet access.

Collaborating Online

Google Docs launched in 2006, and I began using it in 2007 as a tool for producing scholarship. I was living in Chicago and was able to work with an Australian scholar on a piece about fan cultures and then share it with another scholar in Boston by creating a Google Doc and giving editing and viewing privileges to my collaborators. Since then, I have collaborated with a number of other colleagues and friends via Google Docs, co-creating everything from budgets to conference abstracts to slide decks for important talks with potential funders. My collaborators may be located in other cities

or countries, or simply in a different room of my building; online co-authorship works just as well and has proven to be just as useful when I am geographically close to my co-writer(s) as when we are separated by a great distance. I've also used the service for files that only I access, since storing files in the cloud and being able to access them from anywhere is often far more convenient than carrying around an external hard drive with all of my works-in-progress and trying to remember to sync all of the files on my work and office computers.

Google Docs has also become an invaluable teaching tool for me.

In fall 2008, when I started as an Assistant Professor at the University of California, Berkeley where I am jointly appointed in the Berkeley Center for New Media (BCNM) and the Department of Theater, Dance and Performance Studies (TDPS), my chairs and deans invited me to take part in a new Digital Media Labs project, whose mission was to build out and equip two new labs, which would be added to an existing two labs on campus, with the end goal of having four digital labs dedicated to creative arts courses administered by four campus units: Art Practice, Film and Media, TDPS, and BCNM. Thanks to the hard work of a number of individuals from all four groups, the two new labs came into being at the start of 2010, and I signed on to teach a course called "Sound Design and Media Theater" in one of them.[2]

I had taught several "theory" courses at Berkeley before, but this would be my first "practice" course. When I taught "Performance and Technology," "The History and Theory of New Media," or "Asian/American Performance across Media," I stood at the front of the classroom, lecturing and facilitating discussions. Frequently, I or a student giving a presentation would need to project a video clip or series of images or sounds from a laptop, and I would step to the side of the room so that the projection and/or the student who was presenting could be front-and-center.

Soon after my first semester teaching Sound Design began, I realized that a design class requires instructors and students to relate very differently, both to one another and to media, than does a theory class. In my theory classes, the students direct their attention primarily towards the front of the classroom, to the instructor (who, most of the time, is myself, the professor, though oftentimes in my classes, the instructor is a student or a guest speaker presenting or performing or leading a class discussion). In a digital media design class, there is still a "front of the classroom" where all students' eyes and ears are directed, but at that "front" is not a person, the instructor, but rather a digital projection of the instructor's computer screen. It is still "I" who is teaching, but not by making my face or body the center of the students' visual apprehension. I sit at a workstation in the front row of the classroom, my back facing the students, my eyes on the screen in front of me, and the students do not, of course, watch the back of my head. They watch the large white wall directly in front of all of us, where the movements I make using my mouse and keyboard are magnified so that even the minutest rollovers or double-clicks are easily observed. The students watch my manipulation of, and engagement with, the software tools that they are learning. They do their best to follow my example of keystrokes, scrolls, and clicks. These "demonstrations," when I show students how to use various features and modes on software, are the heart of every class meeting. There are other activities during class time—discussions, show-and-tell presentations of professional artists' sound and video work, practice/lab time, group critiques—but it is during the demonstrations that I communicate to students the protocols and guidelines and shortcuts for successfully editing, crafting, and playing back sound and video in programs such as Pro Tools,[3] QuickTime,[4] and QLab.[5]

Reinforcing Software Demos with Lecture Notes

Software demonstrations are full of specific information, and I didn't want students to attempt to scribble down dozens of details and rules as they were watching my demonstrations. I wanted them to engage with the software and practice in tandem with me, so that they could see for themselves how the programs work and so that they were able to ask pertinent questions while we were together. To encourage them to direct their attention to hands-on engagement rather than note-taking, I began using Google Docs as an instructional tool very early on in my first semester teaching Sound Design.

I created a Google Doc called "Lecture Notes." Before every class session, I opened up the *Lecture Notes* Google Doc and wrote a set of point-by-point directions on how to use the particular features that I would demonstrate to the students that day. I also included links that I thought would be helpful to the students, for example, to The Freesound Project[6] and ccMixter,[7] which make sound and video files available for download through Creative Commons licenses. I sometimes included screenshots from my work with software so that students could reference visual guidelines as well as textual

ones. I then published *Lecture Notes* as a web page, and used Berkeley's course management software to put a permanent link to the *Lecture Notes* URL in the "Resources" folder of our course site.

Because *Lecture Notes* was stored in a living document accessible to all registered students via the restricted course site, my students could pull up the document on their workstations as they sat in class, watching me interact with software, and they had the security of knowing that they could access those notes later, when they were working with the programs on their own. They didn't have to take careful notes during class (although I always tell students that they certainly *may* take their own notes if they wish, if note-taking helps them learn better), and they could reference my notes anytime, either in class or while they were constructing their individual projects.

One of my primary goals in teaching the Sound Design class is to make "myself" present to my students when they are working independently, and in such a class, the "me" that they need most often is the mouse moving across the screen, the typing appearing in text boxes, and the voice accompanying the visual demonstration and telling them orally what I am doing as I move the mouse and type text to create sound and video files. My Google Doc *Lecture Notes* allows me to be present to students when they need "me," as they attempt to learn a set of technical skills. I could pass out hard copies of my notes, or e-mail notes to the class after every session, but then students would have to compile disparate sheets of paper or digital information sent on different days. The Google Doc is comprehensive and searchable, so that students wondering about a specific tool or operation can digitally find it in *Lecture Notes* in seconds using the Command + F keys.

I could create a Wiki or blog that would contain the same information as my *Lecture Notes,* which would keep all of the information in one place, but a Google Doc is preferable because I can more or less limit its circulation to the students enrolled in my class. The Google Doc is published on the Web, but with a relatively Google-proof URL (i.e., the document doesn't come up in any of the first 10 pages of a Google search for the name of my class), and can be easily accessed only through the course's bSpace site (bSpace is UC Berkeley's online course management system). I wish to restrict the circulation of my *Lecture Notes* to my students so that potential future students, or students not taking a sound design class but interested in the topic, don't get the impression that my detailed step-by-step instructions constitute any kind of comprehensive guide to using design and editing software. I'm certain that some excellent online guides to software exist for the platforms that I teach to my students; I just don't want my *Lecture Notes,* which are written specifically as a *supplement* to my in-class instruction, to be used by a wide audience as one such online guide.

Facilitating Group Critiques

Another way that I use Google Docs in the classroom is as a means of facilitating group critiques. In Sound Design, students must create a number of projects (sound alone, sound plus video, sound plus live performance), and their projects are played for the entire class. The designers-in-training listen to their peers state their thoughts and opinions on each project. In addition to leading a verbal discussion of the merits of the students' works, I also instruct the class to type their feedback for their classmates, plus a numerical rating of each piece (on a 1-5 scale, 5 being best) into Google Docs. They share the documents containing their written critiques with me, and I compile them into a single Google Doc, then post the link to that collection of critiques on the course bSpace, so that students can read what their classmates wrote and see how their work was rated.

Requiring students to contribute written comments and ratings as well as verbal ones helps them improve as designers, since they give and get far more feedback than they would from class discussion alone. In all oral discussions, naturally talkative individuals tend to dominate, and other participants are rarely heard from. But when everyone listening to a project *must* write their opinions down in a Google Doc, they all have to critique one another's work, even if they are unwilling to voice their thoughts aloud in the room. Then, after the group critique session in the classroom, the group critique document allows them to read and consider their peers' reactions over a longer period of time (since the Google Doc is a lasting record), which is a very different experience than listening to rapid-fire group chatter and trying to glean useful information from it.

Also, by asking students to type feedback into a Google Doc after listening to their classmates' projects, I ensure that everyone in the class stays focused during group critique sessions. All instructors today, and especially those of us who teach in digital media labs, must deal with the challenge of students having access to screens, keyboards, and the Web during class time and potentially going off task. Group critique sessions are class periods when

I am not actively demonstrating techniques the students need to learn, so I am at an exponentially greater risk of losing their attention. However, when every screen in the room is filled with a Google Doc, into which each student must constantly type information, I see that everyone's attention stays on the projects being played.

A Failed Experiment

Not all of my experiments with Google Docs in the classroom have been successful. In one of my classes, I created a doc and shared it with every student in the class, so that they were all editors and viewers of a single file. Then, I asked that they enter their ratings (on the 1-5 scale) and comments simultaneously, immediately after they listened to a peer's project. I did not know that Google Docs does not really allow files to receive entries from 15 different editors at the same time; the document I created frequently automatically saved, and every time it saved, it deleted a handful of comments that had just been typed. Students tried to re-type their feedback four or five times in a row, but even this did not guarantee that the Google Doc captured all of their writing, which led to frustration for those commenting, whose work was often lost, as well as those who anticipated being able to read feedback from everyone in the class and were disappointed to have written feedback from only a fraction of their peers. Needless to say, I was probably more frustrated than all of them that my attempt to use Google Docs as a collection point for group critiques had failed. But as soon as I realized that I could simply have each workstation use a different doc, my frustration dissipated.

Google Docs has been an ally far more often than it has been an enemy in my efforts to teach college students in a digital media lab. At this point, I cannot conceive of structuring my classes without it.

[1] "Cloud computing" refers to the practice of storing data online rather than exclusively on personal computers. For example, if you store your digital files—images or sound or video or text—using a website or web-based e-mail provider rather than on your hard drive, your computer could crash or disappear, and your data would be safe online, in "the cloud," where you could access it anytime, from any computing device. See ‹http://www.20thingsilearned.com/cloud-computing/1› for a definition of cloud computing authored by the developers of Google Chrome.

[2] The Fall 2010 syllabus of my Sound Design & Media Theater course can be viewed at: ‹https://docs.google.com/document/pub?id=1Ie2El4fy04LoQ6cqF5L3c5mZqQGPVhsssugTHV8Cgzc›.

[3] See ‹http://www.avid.com/us/products/family/pro-tools›.

[4] See ‹http://www.apple.com/quicktime/what-is/›.

[5] See ‹http://figure53.com/qlab/›.

[6] See ‹http://www.freesound.org/›.

[7] See ‹http://ccmixter.org/›.

Using Twitter—But Not in the Classroom

David Parry

At least on the surface, it seems utterly ridiculous that a communication technology that limits conversational utterances to 140 characters might be of use in a classroom setting. Twitter, critics often (incorrectly) argue, seems to foster two of the cultural practices we often work so hard to resist in the classroom: reductive communication utterances and egotistical self-absorption. As a professor, I see it as one of my jobs to maximize the signal of discussion while limiting the noise, and a cursory examination of Twitter might suggest that it involves way too much noise to be of any pedagogical value. Indeed, I find it to be one of the social media tools with the highest pedagogical return, fostering discussion and expanding both the content and means through which students engage with classroom material.

Despite its popularity and seeming stranglehold on the microblogging market, Twitter is neither the only nor oldest service of its kind. Twitter was preceded by Dodgeball (now discontinued), Jaiku[1] and Tumblr.[2] Following Twitter's public release in July of 2006, other more robust microblogging services have been launched, FriendFeed (bought out by Facebook (McCarthy)), Plurk[3] and Pownce (now defunct), all three of which allowed greater configuration. It is worth noting that there is an open-source microblogging service called Indenti.ca[4] (an alternate to the corporately dominated landscape). For a

range of reasons both technical and historical, however, Twitter has become the most popular of these social media services. Indeed, the name Twitter is in most cases used as a pseudonym for microblogging, and the word "tweet" as both a noun and a verb has already entered the English lexicon. And partly because of its popularity, Twitter is the clear choice, at least for me, when it comes to incorporating microblogging into my teaching.

There are two primary reasons I choose Twitter as my microblogging platform of choice. First is the critical mass of people already using Twitter. As is the case with most social media tools, the more people who actually use a particular service, the richer the possible range of experiences. My second, and just as crucial reason for using Twitter, is due to the way it has become part of the social media ecology, weaving its way into other services. Twitter is designed with an open Application Program Interface (API). An API allows other developers to write programs and applications which "interface" with Twitter and extend its possible uses. Having an open API makes it easy for other programmers to augment Twitter's functionality without first having to obtain permission from Twitter, as long as the code follows the rules established by Twitter. There are several services that make it easy to upload a picture and link to it via Twitter, and a seemingly endless offering of applications (over 300, 000 registered applications) that allow one to interact with Twitter outside of the web interface and augment its features, configuring it to best serve one's own specific purpose. Practically, this means that when using it in the classroom, it is easy to do things beyond writing short, 140 character, messages. It is important to recognize, and I have this conversation with my students when we use Twitter, that Twitter is not the only microblogging service. Contrary to popular belief, microblogging does not equal Twitter, and other services afford other pedagogical opportunities.

The first thing to realize about Twitter is that it is not a single thing; or, more specifically, treating Twitter as a single object is not very useful when it comes to gaining an understanding of it. Twitter is a communication platform. Like blogs, television, radio, or even books, Twitter is a means of communicating that can be adopted for a range of purposes. Rather than ask, "How can I use Twitter in the classroom?" it is better to ask "Is there a type of communication I want students to practice more, and can Twitter help me accomplish this goal?"

Even a brief investigation into what has been written on effectively using Twitter in the classroom yields a range of approaches and assignments. Instructors frequently use Twitter as a means to notify students by sending reminders and updates, a way to send reminders and updates in-between class sessions. Several language instructors use Twitter as a way to have students communicate with native speakers. (Teaching an Italian class? Have students follow native Italian speakers and communicate with them.) Perhaps most interestingly is the way instructors have repurposed Twitter as a creative medium, having students assume the identity of a fictional character and tweet as that person for a week, or perhaps even stage a real-time reenactment of a piece of literature. Finally, instructors have used Twitter as a means of engaging students in large lecture classrooms, much like Twitter is used at conferences now, enabling students to ask questions of the instructor. The way I use Twitter—and the basis for its pedagogical value for me—is actually in doing the reverse, in using it as a tool to foster conversation outside of the classroom.

During the early days of Twitter, the exact nature of the service, and even of microblogging more generally, was the subject of many critical pieces. Many analogies or frameworks for understanding microblogging's space in the social media ecology were offered up. As I indicated, though, due to the various ways people use Twitter, one analogy is not likely to cover the full range of practices: Twitter is legion. But one analogy that is partially true, at least partially true of the way I like to employ Twitter pedagogically, is the Twitter-as-cocktail-party analogy. Twitter is like a continuously running massive cocktail party with innumerable conversations happening at once. One does not have to be present for the entire time, or participate in every conversation, but can check in and out of the party and move between different conversations as appropriate.

As a professor, one of my primary pedagogical goals is to get students to "join the conversation." Regardless of the subject matter I am teaching, I see it as my job to show students what is currently being said about a particular topic, helping them to understand the field of study, the terms under which the dialogue is taking place. And, equally as important is encouraging them to use that base understanding to take ownership over the knowledge they have gained and to begin to participate in the ongoing dialogue around the subject matter. I try to stress to them that they should not just write and produce for me, an audience of one, but come to see that the conversations we have in class are part of a larger cultural discourse in which I encourage them to have an investment (hopefully past the confines of the semester, but at the very least for our 15 weeks of inquiry).

It is in obtaining this pedagogical goal that I find Twitter to be most useful, getting students to "join the conversation" or extend the conversations past the time of our two weekly meetings, or the space of the University. Twitter is a monstrous, always-on cocktail party, a conversation in which students can participate. Given the current state of higher education, I think we will increasingly find students who spend less time on campus, and more time commuting to our classes, working two or three jobs, and engaging in activities independent of the campus environment. Class time becomes just one part of their week, not necessarily its focus. The experience of attending class and then continuing the conversation outside of the classroom, either in the dorms or at the local college hangout, is becoming more the exception than the cultural norm. Twitter can become a powerful meta-tool for developing and tracking ongoing conversations related to our semester, a means of having a dialogue that includes not only those in our class but hopefully many others as well.

To be sure, there are problems with Twitter, and concerns that ought to be raised when using it in a classroom setting. First, it is important to recognize that Twitter is a commercial service. Like other commercial social media tools, the value of a company is predicated on the public freely sharing information from which a company can than harvest market value. With a projected value of $3.7 billion, it is worth pausing to ask both where this value comes from, and in what way does having students use this service contribute to its value (Efrati). Within the context of the class, though, I always raise these issues, using Twitter as a privileged example, to question the market value of social media services such as Twitter. Having students read uncritical articles from mainstream business publications that ask about the future of Twitter and its "monetization" helps to illustrate the problem of unquestionably accepting the corporatization of our social interactions. (Unlike other popular social media services, Twitter's future revenue model is less clear.) Connected to this are concerns about Terms of Service (TOS) and Privacy. Here again, I find that these pedagogical concerns offer up a pedagogical opportunity. Unlike many other social media services, Twitter's Terms of Service and Privacy are eminently readable. At roughly 3,000 words, contained in one page, and written in easily understood terms, Twitter's TOS is ridiculously svelte compared to Facebook's, which approaches 10,000 words couched in heavy legal jargon. Thus, Twitter actually affords the opportunity for students to discuss these issues in an approachable way and even compare the services TOS and privacy policies to other less transparent companies, services, and software applications. One of my pedagogical priorities in teaching social media is to have students take ownership and control over their digital presence, rather than simply default to certain services and blindly accept those company policies. Twitter often serves as a productive framing ground for this conversation.

As with any social media service or any microblogging client, Twitter certainly has limits that frame its pedagogical possibilities. One of the primary limiting factors in using Twitter as a means of communication, a conversational tool, is that compositions are limited to 140 characters. This limit is actually a technological one, born of the fact that Twitter was initially conceived of as a mobile phone microblogging application which worked by leveraging SMS. Indeed, Twitter is still used this way in many parts of the world; one does not need a Smartphone web browser to use it, and the low bandwidth requirements make it convenient even if one does not have a wireless connection.

The most significant pedagogical challenge associated with Twitter is the degree to which there is a great deal of "noise" in the channel. As with any form of media, but especially social media, it can be difficult to limit the noise in the channel while maximizing the amount of signal. In this regard, Twitter can be compared to analog television (pre-cable days) where in order to clearly view a channel, it was necessary to adjust the pair of antennas attached to the set. While initially tuning-in to a specific channel would often yield a great deal of noise with only a hint of the actual broadcast, with a small amount of effort, and often continual adjustment, it was possible to receive a clear picture. Tuning into Twitter works this way, as well. Initially all of the tweets look like noise, and it can take a significant amount of work to see the signal. One of the challenges in crafting an assignment can be to navigate this noise, the sense that there is too much information, most of it not perhaps not relevant to a particular student at a specific moment. A well thought-out assignment encourages students to pay attention to the signal within Twitter while eliminating all of the noise, helping them to learn how to manage a vast flow of information, learning to tune into various channels as their needs change.

The 140 character restriction means, however, that it is necessarily difficult to make any sort of long form argument on Twitter. Communicating in these exceptionally short phrases can lead to avoiding nuance in favor of more simplified statements. Overall, though, criticism is somewhat unwarranted;

while it is true that each individual tweet can only contain 140 characters, thus placing limits on what any one individual can say, the conversation taken as a whole can often be rich and developed. The key then is to design an assignment such that Twitter becomes only one part of the conversation, rather than the entire means of discourse.

Over the past semesters, I have developed the following techniques for incorporating Twitter into the classroom in an effort to maximize its pedagogical usefulness while minimizing or even capitalizing on its limitations—maximizing the signal while trying to minimize the noise. Twitter can be overwhelming, especially to those who have never used it before, so I like to introduce it in stages. Initially, I have students create accounts and begin by following my account, their classmates' accounts, and accounts from ten people whom they do not know. I encourage them to choose people as opposed to organizations because I want them to think about how Twitter can operate as a conversation between people, not merely a way for organizations to inform interested parties about "breaking news." Likewise, I encourage them to follow people who are not necessarily Twitter "stars" like athletes or Hollywood personalities, but rather voices not typically represented in the media.

Finding the people to follow can often be the most difficult part of beginning to use Twitter, so I suggest several routes to discovering these voices. First students can look for people who directly relate to the course material being covered. I teach digital media studies, and many of the authors we read are also active on Twitter. This presents a particularly rich opportunity for students to contextualize those authors beyond the pieces we way have read and, as has occurred on more than one occasion, engage in conversations via Twitter with these authors. Another suggestion I make to students is to follow professionals in the field where they hope to work post-graduation. For students interested in journalism or social justice (as many of my students are), the range of voices on Twitter is again fairly diverse. Finally, I find that it is useful for students to share their list of people who others might find interesting in some way with each other. I usually use the class Wiki for this, making it part of the assignment to list one person they are following with a short explanation as to why others might want to follow that person.

Once all the students have accounts and are following a number of people, I give them the first assignment, which is simply to send at least ten tweets between the current class and the next class meeting. I place no other restrictions on the assignment other than to say they should spread them out (i.e., not send all ten five minutes before class). It is also useful at this point to demonstrate to students a few Twitter clients that leverage the Twitter API to create a more rich experience. While the web interface has vastly improved over the last two years, it is my experience that students who use Smartphone applications or clients for their laptop/desktop computers have an easier time managing the flow of information. During the following class, I discuss with students their experience using Twitter, what their general impression was, what worked and what did not. This step is crucial as it helps to demonstrate the range of experiences people are having; even the short few days of initial use yield divergent impressions. At this stage, I find students frequently see Twitter as a version of Instant Messenger or an always-on chat room, so the goal of the next part of the assignment is to get them to see the way Twitter can be used to track conversations and serve as a stepping-off point to discourse rather than an endpoint.

For the next step of the assignment, I explain to students two crucial features of Twitter. First, one of the ways information is organized on Twitter is via the use of hashtags (#). After hashtags are explained, students cannot only start to see how conversations get organized but also discover who else is talking about the subjects they are tweeting about. As part of this explanation, I introduce a hashtag for the class (usually the class number: e.g., #eng205) and indicate that any tweets containing material relevant to the class should now utilize this hashtag. On a related note, this also leads to an explanation and discussion of trending topics, which are often driven, although not always, by hashtags.

The second piece, which is just as important is to explain what David Silver refers to as the difference between thin and thick tweets, where thin tweets contain just a statement or a response (no additional information) and where thick tweets contain a brief piece of contextual text along with a link to something more developed (something that cannot be described simply in 140 characters) (Silver). The goal is to get students to see how Twitter can operate at the "meta-conversational" level, pointing to various places on the Web where more nuanced conversation is developing, that there might be a great deal more meaning in any particular tweet than the 140 characters might initially suggest. For the next part of the assignment, I tell students they need to send at least fifteen tweets, five of which must be "thick" tweets, and five of which must contain relevant hashtags. I also require them to pay

attention to the trending topics. At the beginning of the following class, we talk about the experience of using Twitter this way and pick out one of the more active conversations that occurred, looking closely at the way Twitter was just "part of the conversation."

At this point, I find that the dynamic of Twitter often takes over as students start to use it as a meta-communicative tool, tracking material relevant to class, sending links (thick tweets) and sharing some of their life casting tweets (what they are doing for the weekend or how they feel about their job at the moment). Even those lifecasting tweets have important value, as they tend to "speed the class up"—reaching that point that usually happens only late in the semester when students start to feel comfortable and familiar with each other, often creating a more productive learning environment. What is important from a pedagogical standpoint is not to let these conversations happen only on Twitter. That is, whenever there is a particularly interesting or popular conversation on Twitter, incorporating it into the classroom discussion makes Twitter part of the extended learning process instead of a distinct sphere. When done well, with a group of students who are invested in the class material, this can create an atmosphere whereby students start to understand that the issues being discussed are not limited to the confines of the semester, but rather have importance beyond the classroom.

[1] See ‹http://www.jaiku.com/›.

[2] See ‹http://tumblr.com/›.

[3] See ‹http://www.plurk.com/t/English#hot/›.

[4] See ‹http://indenti.ca/›.

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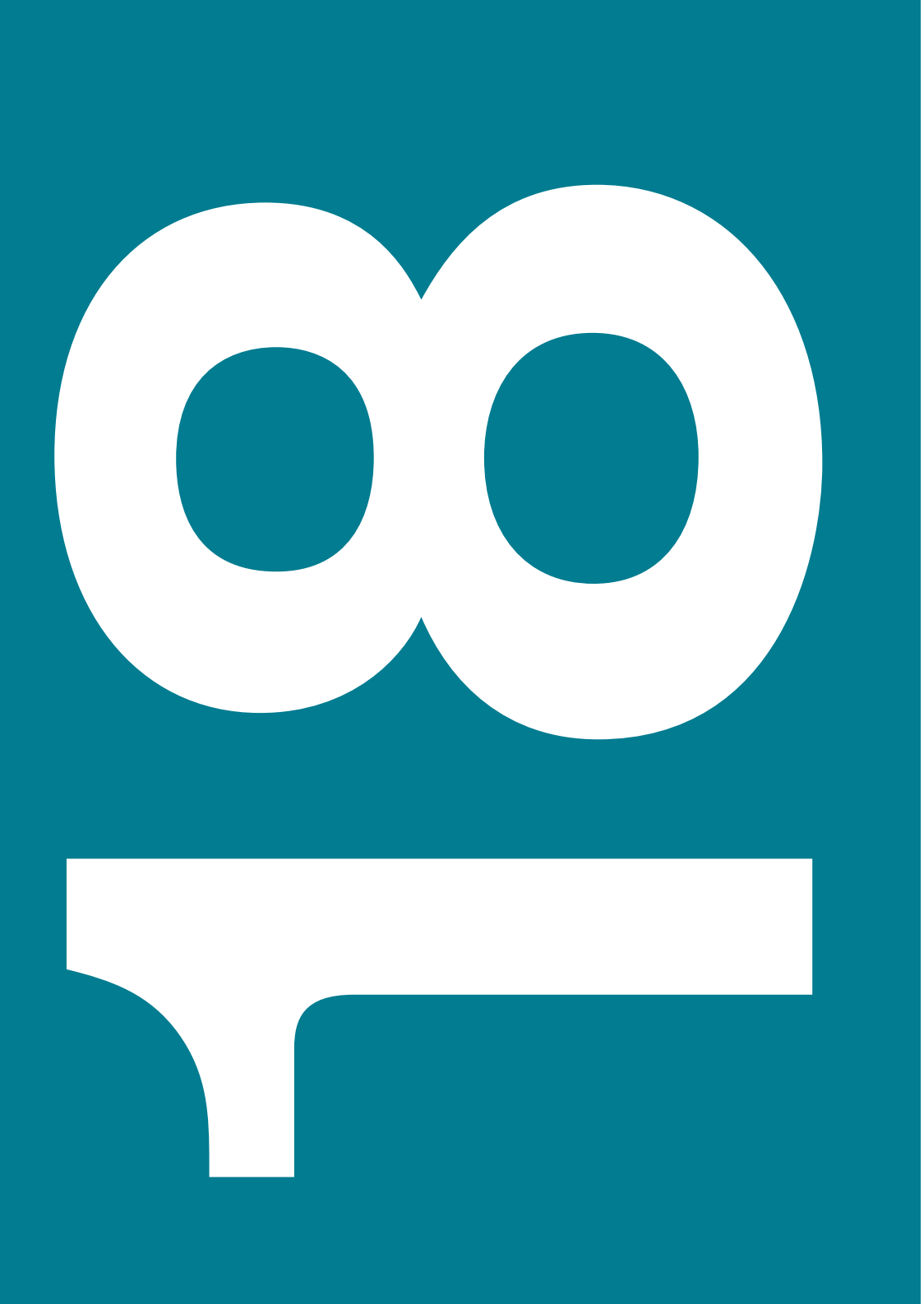

Voice, Performance and Transience
Learning Through Seesmic

Holly Willis

Midterm assignments in my classes had become hapless rituals of recapitulation dutifully endured by students and myself alike. As familiar as bad coffee, they needed rejuvenation, especially in the context of an upper division undergraduate seminar on methodologies in new modes of research and authoring. Indeed, it seemed impossible to deliver a midterm in its traditional form, as a set of written questions requiring written responses, in a course dedicated to rethinking scholarly practice. Hence, the video midterm assignment was born.

The tool? Seesmic. Dubbed the "Twitter of video," Seesmic was, for a brief while, a platform designed to host video microblogging so that people could quickly and easily post mini-video updates using webcams instead of 140-character text-based tweets. The Seesmic company was founded in 2007 in San Francisco by Loïc Le Meur, a French social media entrepreneur with a background in software development. The videoblogging tool was launched later that year. It was initially successful to the extent that a group of dedicated users posted videos, created conversations and shared ideas; however, the platform never really took off, and certainly never gained the prominence of Twitter. The company eventually shifted the orientation of Seesmic's capacities, creating a tool that could aggregate one's disparate social

media applications into a single space. Seesmic was, like so many tools, transient and contributed to a broader discussion of obsolescence and mutability, fundamental to contemporary digital literacy.

Despite its evanescence, my students and I were able to make use of Seesmic for an experiment with the midterm format in spring, 2009. These were my three primary goals when adopting this platform:

I wanted students to take more responsibility for their learning, its outcomes and the assessment of those outcomes; this is a general objective, in line with the goals of the Institute for Multimedia Literacy's Honors in Multimedia Scholarship program, which is dedicated to supporting students in the crafting of new modes of media-rich scholarly communication based on research in their major, as suited to the particular demands of their own disciplinary culture. Core to the program is the mandate to have students participate in their learning with greater agency.

I also wanted my students to experience the notion of assessment through a different lens, so I needed a way to create a sense of unfamiliarity, which I hoped would bring into relief the dynamics implicit within traditional midterms; again, this objective was part of a larger mandate related to scholarly multimedia, but it was also tied to the desire to have students think about scholarly traditions and practices generally. In order to create new modes of scholarly communication, which may also challenge scholarly conventions, students need to be able to articulate the relationship between specific incursions into tradition and broader rhetorical contexts.

Finally, I wanted students to discover and use a new tool as a group and to continue the course's interest in the impact of media platforms on rhetorical potentials.

Below is the assignment that I distributed. Why is it written? It's simple: I felt compelled to abide by a sense of responsibility to clarity, which seemed to require physicality. On paper. With words, a deadline and very clear expectations. Despite my desire to embody the assignment, to integrate it fully using Seesmic myself, there lingered a sense of disciplinary tradition, surveillance and the rules of academia, whether real or imagined. Too often, too, unexpected directions taken in experiments with new media tools create a slippery space in which students lack a sense of what's expected. While the students in our program tend to be adventurous and willing to experiment, it is necessary to balance that enthusiasm with clear boundaries and articulated expectations.

That said, I did create a Seesmic account and, webcam on, delivered the assignment. Eight or nine takes later, I began to fret over wasted time, vanity and, perhaps more importantly, the tone that my video would set. Would students immediately adopt the same conventions I used? I did not want to constrain possibilities. Why not let the students start afresh, without preconceptions or the model my video would represent? In the end, I opted not to show my video assignment and instead delivered the assignment in class, with a written version distributed on paper and posted to the course Wiki.

The Midterm Assignment

One of the objectives of IML 346 includes calling attention to the relationship between form and content in various media platforms. We've talked about how interactive media projects and platforms "produce" users, and we've looked at what works and doesn't work in terms of several web-based scholarly interactive projects. Another objective for the class is to consider new ways of deploying media; how can we use the array of tools that is available? How are these tools meant to be used and how might they be "mis-used" to do something more interesting?

With these two objectives in mind, your assignment for the midterm is to draft one compelling or provocative question for the midterm to be answered by the rest of us. You will post—or ask—your question in the form of a video on Seesmic, which has been described as a videoblogging application.

As people post replies, feel free to continue the conversation: what can you add? What might you clarify? As each person responds, do you feel the need to synthesize the responses?

In turn, you will have to answer five other questions posted by your classmates, responding in video to each. Here, too, feel free to post more than once as conversations develop.

Consider the math: if you each ask a one-minute question, and then you each post one-minute answers, that's six questions, each with five answers … You get the picture: if you post a 10-minute question, with 10-minute answers, this could be a very, very long midterm!

More importantly, you should think about the form: what does Seesmic do well? What does it do poorly? How can/should you present yourself?

You all will be responsible for grading these midterms, and we will define a rubric in class.

The results of the midterm were fascinating. In a certain way, the experiment failed completely. Most of the questions posed by the students were facile or inexplicably broad. I had imagined wonderfully engaged musings over the course's main text, *Software Takes Command,* by Lev Manovich, or attempts to weave together themes from our information visualization exercises and the array of videos and examples of motion graphics we had screened. For example, one student, referencing Jay David Bolter and David Grusin, asked, "Does remediation by computers add a new dimension?" Further, the answers offered in the threaded video conversations were for the most part equally flat and uninteresting, especially as they went on. One student, for example, mused on the ways in which the variety of viewpoints has expanded with the rise of the Internet, and another fretted over the power of technology. "Will our tools dominate us?" he asked, but without conviction and with no reference to our far more nuanced in-class discussions.

Students also disliked the platform. They complained about the time it took to shoot, post and respond to the questions, as well as the time needed to learn how to use the software quickly and effectively.

Despite less-than-exceptional questions and answers related to course content, the students nevertheless uncovered a series of issues and ideas foundational to digital media, scholarly communication and rhetoric. They also experienced the very tangible impact of software and its control, which is a subject tackled in Manovich's text. We might have been able to discuss and illustrate all of these ideas from the reading and by extrapolating from other related experiences, but we never could have understood them as effectively without having had the week-long immersion in Seesmic.

Perhaps the most significant attribute the students discovered was performance. Each of the students responded to their role as camera subject in very different ways with regard to dress, stance and voice. These aspects are traditionally invisible or naturalized in the written midterm—students assume a writing "voice" that they've determined to be appropriate after many years of writing within scholarly situations, and little thought is dedicated to the topic. However, in video, students overtly pondered, often jokingly, how to speak appropriately given the specifics of the rhetorical situation. Should they speak as they did during our seminars? Should their voice be more official? Or should it mimic more casual modes used with other social media tools? The webcam prompts a particular kind of staging, and the students struggled to find a way to situate their more scholarly project within its vernacular.

The students considered what would constitute an appropriate visual form. Most framed themselves in medium close-up, using the webcam and its conventions. Only one student opted not to appear at all, presenting his questions and answers in text form only. In addition to framing, however, students explored gesture and activities: one student was extremely proper, sitting upright with poise as if for an important job interview, while another chose to slouch casually, as if unconcerned by the midterm's implied rigor and official capacity. Another spoke very quickly, and at times moved his camera around frenetically to show other parts of his room in order to illustrate key points.

The students also struggled with performance and its relationship to revision. All of them rehearsed their questions and answers, and shot each video repeatedly until it was "right." Indeed, they became very aware of their use of gesture, vocal tone and even of a kind of intimacy with the camera as they rehearsed, shot and reshot their answers. They also became acutely aware of time and of the time "lost" in rehearsing and re-shooting their responses. At one point, at the beginning of a response, a student declared that his answer would be shot in one take only. This gave him permission, in a sense, for any lack of polish, but it also clearly demarcated two distinct forms: the single-shot and unrehearsed response, which held value for being un-cut and spontaneous, versus the rehearsed video, resulting from several takes, which held value for its polish and skill. Interestingly, only two students opted to interrupt the single-take response to create videos with multiple shots, and no one, with the exception of the student who used text, chose to create a video that was not what might be called first-person direct address to the camera.

While the text-based question and response form of the one student eluded the pitfalls of performance, it posed another interesting contradiction. This assignment was produced by a student majoring in film, with full exposure to courses in directing, editing and cinematography for live-action filmmaking. Rather than use these skills, the student instead deployed text, maintaining a clear boundary between the visual expression of cinema and a form he found suitable for a video midterm.

After the questions and answers had all been posted, we viewed selected examples in class and discussed the entire exercise. We reflected on performance, the divide between social and scholarly media forms, and the broader goals of a midterm exam. Indeed, it was the discussion that followed the week-long experiment rather than the questions and answers themselves that demonstrated new knowledge, discovered through the process, making the Seesmic video midterm a success. As we reflected as a group on the pitfalls and occasional highlights in the videos, we were developing an embodied understanding of an emergent rhetoric of new media.

Seesmic no longer exists as a micro-videoblogging site, but that particular tool was never central to the midterm experiment anyway. What was necessary was a means for destabilizing traditional notions of a particularly entrenched educational form; I needed a tool that would facilitate the creation of distance through which to reflect on the midterm's role and potentials. In this way, Seesmic was a cipher. However, fundamental to teaching with tools that rapidly come and go is the need to teach flux and instability as constituent components of digital authoring. Students need to learn how to teach themselves about new software applications and to discern a software's intended use as well as the ways in which it might be mis-used. Here, flexibility, resilience and an ability to move from platform to platform will serve students well. Students also need to consider archiving and documentation. Where will Seesmic videos be in three years? If this is a concern, students need to know to take action now to preserve and document their work.

Finally, key to teaching and authoring in digital media is the attention paid to core skills—crafting a visual or sonic argument, for example, or understanding and making use of the relationship between form and content—rather than simply a mastery of a particular software application or tool. Tools come and go, and students need to be agile and able to deploy proficiencies related to research and argument across divergent platforms. This entails thinking through media, allowing for epistemological shifts that can occur in the dialogue among ideas, tools and audiences. Indeed, rather than crafting final and fixed documents, students in more advanced courses are now being asked to create systems that invite users to participate in the production of ideas and an argument. The most obvious instances of this are in the design of games; however, students can craft non-game systems through which to explore and communicate ideas as well. The rise of pervasive computing suggests the potential even for tangible computing as a platform for scholarly activities.

Our teaching might follow the evolution of these tools, and their impact on paradigm of teaching. Educators might understand the educational endeavor in a digital culture as one of crafting systems that unite data and processes, which underlie an interface, all of which are designed for communities of users.

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Teaching and Learning with Video Annotations

Jonah Bossewitch and Michael D. Preston

Educators are becoming all too accustomed to the "glazing over" effect: students thinking they understand the material presented in videos shown in class or assigned for home viewing, but subsequent discussions often revealing minimal or superficial comprehension. This chapter is concerned with the development of tools and activities to help students attend to video-based materials with increased focus and heightened awareness of their own intellectual project. Specifically, we are interested in facilitating deeper and more critical explorations of video and encouraging students to marshal video-based primary sources as evidence to support their thinking. We hope to demonstrate that when video is introduced into a curriculum, these activities produce a deeper level of engagement, better understanding of the content, or even an improvement in students' cognitive capacities for learning from video.

In our experience at a large research university, video is used increasingly across a wide variety of learning contexts, and is no longer limited to film and media studies. Video-based materials appear in the curricula of the humanities, natural and social sciences, and fine arts. Many pre-professional programs, from social work to teacher education, also rely heavily on video to support case-based learning: students are assigned to watch and critique scenarios in order to improve their skills of observation, interpretation, rea-

soning, and judgment. Schools of medicine, business, social work, journalism, and teaching have all embraced video-based learning materials, drawing on specially produced educational videos, library holdings, public broadcast archives, television and film. Furthermore, as production costs continue to plummet, we are also beginning to see more self-reflective learning activities in which students capture their own original video for subsequent analysis.

In this chapter, we explore a range of learning activities constructed around video annotations and multimedia composition. First, we describe some of the different forms that critical video compositions can take, and the importance of reinforcing the literacies involved in these new forms of expression and scholarship. We focus on the pedagogical motivations for introducing "video annotation" (which includes "clipping," or the selection and naming of specific segments of video from longer videos) as an essential device for teaching with video: as a strategy that can help students learn to discriminate what matters from what does not and as a means for citing video content to support their ideas as part of a discursive essay, discussion, presentation, or other forms of knowledge production and sharing. Next, we explore tools that can be mobilized to support these pedagogies, including gratis web services and open-source alternatives we have developed ourselves to streamline students' learning experiences. Finally, we discuss a variety of lesson plans and assignments created based on our experiences as staff of the Columbia Center for New Media Teaching and Learning (CCNMTL) collaborating with faculty at Columbia University. We describe educational activities and the supporting open-source web applications we have developed around gathering and organizing video annotations (clips), and around composing critical multimedia essays incorporating these clips.

With the support of Columbia University, the National Science Foundation, and the Institute of Museum and Library Services, we have developed software designed specifically to support these pedagogical strategies and have released them under open-source licenses.[1] Currently, we are only able to offer hosted solutions to the Columbia University community, so the installation and maintenance of our open-source applications requires a hosting provider and system administration skills. Please contact the authors if you are interested in collaborating around these solutions.

Pedagogical Shifts: New Approaches to Teaching with Video

For thousands of years, critical and scholarly discourse around text has revolved around citation and reference. The "critical essay" is a foundational genre in education and scholarship, predicated on establishing the provenance of sources that support an argument. Yet, twenty years after the invention of HTML, there is still little consensus around what this kind of discourse should look like for multimedia sources. The practice of studying and collecting multimedia sources to support these presentations is similarly in flux. As video becomes an increasingly common and important primary source, it is essential to continue experimenting with techniques for critically engaging these sources, conducting research and communicating these findings.

Citation in film studies is also evolving. Scholars in this field traditionally devoted a significant portion of their writing to describing the scenes they wanted to analyze, because they could not assume that their readership would have seen the works cited. In fact, the authors themselves often had limited access to their objects of study, and relied heavily on their memory in their analysis. But once VHS became popular, libraries and commercial vendors began to provide ready access to film and video works, and authors could finally rely upon access to the material they were analyzing. They studied the films with greater attention through repeated viewings and no longer needed to describe their sources in as much detail. Analog archives and rights-encumbered digital sources still remain a serious barrier to access, but a seismic shift is once again occurring around the study and presentation of digital video.

These practices converge for educators and students in today's classroom. New presentation formats and methods for communicating with video have changed the landscape of what is possible, but these new possibilities amplify rather than minimize the need for educators to teach and model effective practices for careful analysis and conscientious citation.

Just as the study of text typically involves close reading and re-reading, highlighting and underlining, note taking and review, educators need to learn how to encourage analogous practices around video to foster a culture of serious scholarship through deep concentration and focus. Both online and offline digital video environments provide mechanisms for viewers to select and clip segments of the video they are watching in order to recontextualize and repurpose them. Video can be treated as a manipulative object, as raw material to be controlled, segmented, reorganized, reviewed, discussed and debated as part of an active learning experience, and the instructor or students

can develop the narrative. While instructors may have to adapt their teaching practices to learn how to teach use of video as an object of analysis and as the basis of class discussion, they can also use the opportunity to model the technique of close viewing for students, and demonstrate how viewing can inform their own expert thinking about the material, which varies according to discipline.

Instructors must also help students develop sufficient curiosity and an orientation toward evidence that will motivate them to seek out information in the video. Assignments designed to force students to look closely and repeatedly at video interrupt the natural viewing flow, disrupting the passive acceptance of the video's governing narrative and editorial intent. By contrast, the close viewing process requires students' attention and cultivates the observational skills required to identify significant, interpretation-worthy moments. Thus, students develop the motivation to watch closely out of a sense that there is something worth discovering in the content. Furthermore, the burden of proof—making a convincing argument to a peer or instructor—requires careful selection of content and application within a written form.

These various forms of inquiry should be founded on healthy study habits that support the close reading of primary sources, evidence-based reasoning, and conscientious attribution. Whether students are producing video segments that juxtapose primary sources in the style of Jon Stewart's Daily Show political analyses, or embedding media in a written essay in the style popularized by bloggers, educators need to model and teach their students the appropriate methods for engaging deeply with primary sources. Similarly, new rhetorical forms should not sacrifice the culture of rigorous and scholarly citation. Significant and ongoing work in multimedia environments with attention to these priorities raises awareness among students of provenance, rights, and access in a digital environment. In other words, close attention to these details will improve their media literacy.

Cultivating New Skills: Students in the Cutting Room

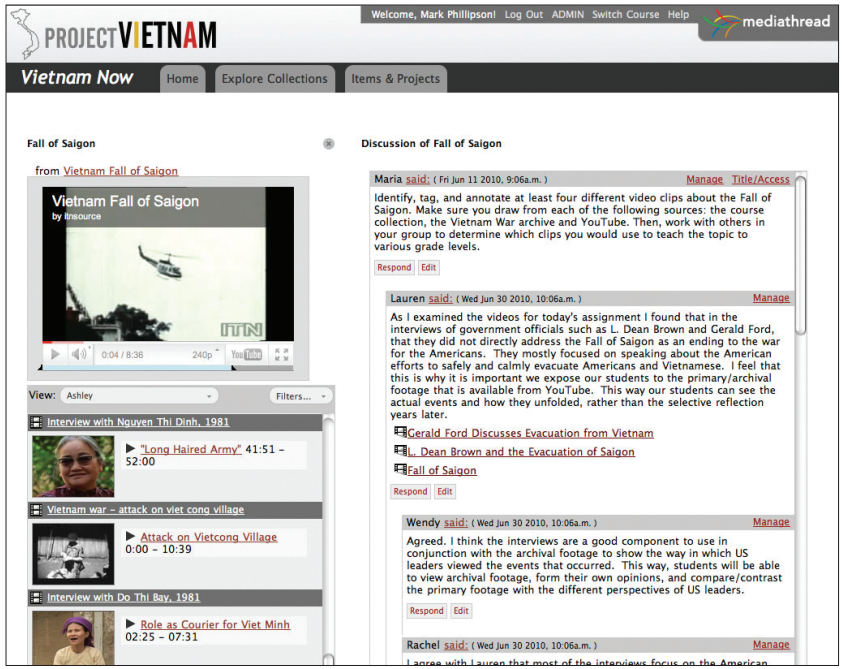
What we call a "video annotation" comprises identifying specific time codes in a video as well as metadata, tags, and working notes associated with a particular selection, or clip, of video. Offline video editing environments can support these operations through the direct manipulation of the source video material, and web-based video streaming services increasingly support direct referencing, embedding, and sharing of sub-selections of video. Standards committees are close to finalizing conventions for specifying so-called "time-based," "isochronic" or "fine-grained" metadata for web-based video resources. However, these standards do not specify the design of user interfaces, workflows, and pedagogies leveraging these standards. In fact, the design of the student experience around video may largely proceed independently of the finalizing of these standards, so the iterative design of these analysis environments ought to inform their completion.

In addition to enabling the association of metadata and note-taking, the emerging standards also support and suggest new forms of composition and presentation. By specifying a particular sub-selection of a video, students can embed video clips in addition to creating a traditional bibliographic citation. This style of composition allows students to "quote" their video directly, instead of describing it in the text, or referring to the time codes corresponding to their analysis. Students might then produce a PowerPoint presentation, "film essay," interactive media environment, or hyperlinked text with embedded multimedia. Some educators are even challenging the traditional rhetorical mode of the linear critical essay, and are experimenting with alternative rhetorical modes that suggest possibilities instead of trying to convince readers of a conclusion. The narrative form itself is being interrogated as archives, databases and collections operate as independent modes of participatory communication. Iconic examples of each of these styles of discourse are emerging, but students need clarity and guidance to master these forms of expression and persuasion.

The current generation of web-based video services is capable of supporting these learning activities, albeit with some curation and coaxing. When the videos being studied are hosted on YouTube, students can be instructed to utilize services like Splicd or TubeChop to clip specific selections, and then to compose their responses, incorporating their selections, in any multimedia-authoring environment, such as their learning management system, a course blog, or a Wiki. But while these tools can support the activities described above, the lack of integration between them can make for a cumbersome and clunky experience. For this reason, CCNMTL has been actively developing integrated web applications that streamline these educational workflows.

Learning with Video Annotation: Methodologies and Social Practices

By heavily leveraging video annotation capabilities, we have designed a variety of learning engagements around video that emphasize the thoughtful



separation of *study*—research, gathering, collection, and organization; *composition*—a dedicated workspace where students work with the clips they have collected to compose a critical essay; and *assessment*—where faculty can review and evaluate students' compositions and provide them with feedback. In our curricular engagements, we have also explored variations in access models corresponding to the modalities enabled by social media. We support faculty who are committed to traditional solo assignments, faculty who blend online and in-class discussions, and faculty who are interested in exploring the possibilities around distributed research, collaborative authorship, and course-wide or even public sharing and publication.

The immediate goal of implementing these methods is to increase the likelihood that students will gather their own evidence of understanding of video based materials and to encourage them, through repeated viewing and manual interaction with the video content, to be deliberate in validating what they see and in explaining the connections between their evidence and claims about learning. A long-range goal of these methods is to help students develop a more contingent notion of truth that encourages them to entertain alternative hypotheses and promotes further inquiry as well as new ideas for teaching. This process represents a recursive, iterative response to new events; gathering more information creates the need for new evidence.

One important general finding is that videos do not need to be lengthy to be compelling. In fact, shorter segments may place greater emphasis on close viewing and resultant comprehension. We have found that when students are encouraged to view a clip repeatedly, and their viewing is scaffolded through prompts and questions about the content, they learn to look with increasing granularity. Withholding evidence by stopping the clip at significant moments also helps students develop an awareness of their own uncertainty, forcing them to make their best assessment using only the information that is immediately available to them.

Lessons Planned, Lessons Learned

The following multimedia-based assignments are a sampling of some of the approaches we have developed with Columbia faculty:

Guided lessons: Instructors preselect video clips and organize them into a specific sequence to be viewed by students, who must answer questions associated with each video segment. Guided lessons have been successfully used for teaching skills, such as clinical interviewing, by simulating the process of responding to an interviewee, prompting the student to interpret what they saw, propose the next question, or critique the interviewer's technique in the video.

Lecture comprehension: Students are assigned to view a recorded interview or lecture and then select three segments and comment on them. Students are then instructed that comments should be in their own words and to avoid repeating the words of the source. The first comment should be one that they think is a novel notion. The second should be something they do not understand, a difficult idea, or something they want to understand better. The third is a segment that they think is related to the current classroom dialogue.

Close object analysis with targeted comparisons: Students work with a curated collection of multimedia learning objects, and select two objects to closely compare and contrast. They work individually to write comparison essays, embedding specific annotations from within the object to illustrate and support their claims. Next, students are asked to study the comparison projects of other students in the class, leave comments and questions about their findings, and keep notes about additions they might make about their own project.

Communal hunting and gathering, with in-class synthesis: Students are introduced to a curated collection of sources, but are also encouraged to explore pertinent cultural representations available on the open Web. In this environment, the annotations that students create are shared across the class, and an explicit learning objective is the transference of a "judicial selection" of source material from faculty to students. Students gather objects and then compare their selections during in-class discussion. Finally, students compose final projects that incorporate these annotations.

Collective analysis across semesters of a core set of resources: Students explore an archive of a serialized work, such as a digitized newspaper, to investigate patterns that emerge over time but might not otherwise be detected by the typical consumer of the source material, and whose focus might be less critical or not longitudinal. These findings are collected and shared in a class investigation of a particular resource.

Reflection on self-evaluations/performances: Students videotape their own performances as pre-service teachers, therapists, doctors, etc. and then write an analysis, self-critique or reflection, embedding clips from their performances to illustrate points raised, according to criteria established by the instructor. Students learn to recognize successful and unsuccessful behaviors they can correct and to utilize self-reflection as a tool for ongoing improvement as a professional.

Conclusion

As the means of accessing and using video for education rapidly expand, we want to reinforce the notion that pedagogy matters. The mere availability of video alone is not sufficient to improve educational outcomes; pedagogical approaches to video that encourage close reading through annotation and composition may help do so. These methods encourage students to treat video sources critically as raw material for discourse and analysis. In our world, complexity is inherent, and one goal of educating students should be to help them embrace this complexity and develop a propensity to examine it more closely and to interpret it with appropriate intellectual rigor.

The pedagogical strategies suggested in this chapter have the added benefit of making video that is available on the open Web more relevant to education. They provide students with a way to bridge their media experiences outside the classroom with serious scholarship and research. The practices of participatory education and research extend beyond the classroom into activism, advocacy, journalism and government. Recent advances in video production, editing, and communication technology make once technically challenging activities into a fairly commonplace enterprise, and students who learn to think critically about video can also learn to use that video as a medium for persuasive expression and dialogue with others.

In this chapter, we have purposely avoided focusing on our own tools in favor of a more generalized approach to using video for teaching and learning. While our tools do facilitate smoother workflows and group permissions, the pedagogical principles and examples we have provided are not necessarily dependent on specific tools. We hope that readers will conclude this chapter with ideas for how they might purposefully utilize video in their own teaching and adopt new methods for engaging their students.

[1] To download and learn more about our web-based multimedia annotation tools, VITAL and MediaThread, please visit ‹http://ccnmtl.columbia.edu/our_services/tools/vital/› and ‹http://ccnmtl.columbia.edu/mediathread/›, respectively.

YouTube Pedagogy
Finding Communities of Practice in a Distributed Learning World

Elizabeth Losh

The Social Web and Critical Pedagogy

YouTube poses certain basic challenges to teaching effectively and ethically. It relies on a cataloguing system driven by shallow popularity metrics, and its library of videos is maintained largely by the labor of fan communities rather than by the deliberative practices of archivists and instructors engaged with evaluating the credibility of sources or the coherence of the curricula. As Siva Vaidhyanathan explains in *The Googlization of Everything,* YouTube "uses its members to police its content" and uses a rhetoric about "community" that suggests the presence of "community norms," despite the fact that the site has "no mechanism to establish what those standards or norms should be" (52). Elsewhere, Vaidhyanathan has asserted that the classroom or the lecture hall is a "sacred space" that can't be easily translated to the marketplace of distance learning schemes that depend on online video and other automated and modularized computational media delivery tools (Vaidhyanathan, "The Classroom as a Sacred Space"). For him, the "universal surveillance and infrastructural imperialism" that is central to the Google mission makes any of its products that are designed according to its search algorithms and its logic of personalization unlikely venues for effective teaching ("Googlization" 96). As Vaidhyanathan explains, learning is "by definition an encounter with what you don't know, what you haven't thought of, what you couldn't

conceive, and what you never understood or entertained as possible" or "an encounter with the other—even with otherness as such" but "the kind of filter that Google interposes between an Internet searcher and what a search yields shields the searcher from radical encounters with the other by 'personalizing' the results to reflect who the searcher is, his or her past interests, and how the information fits with what the searcher has already been shown to know" (182). Furthermore, the core technologies of YouTube violate participants' privacy and their sense of individual agency by planting cookies that mine data about user behavior and consumer preferences. The entire business model of YouTube is based on targeted advertising, not pedagogical empowerment, so YouTube is in many ways an unlikely teaching tool.

Alexandra Juhasz, another critic of the Social Web, argues that because of YouTube's ad hoc epistemological structure, the site is much more likely to reinforce stereotypes than to encourage critical thinking appropriate to the classroom. As she puts it, "What is popular on YouTube does what we already like in ways that we already know . . . it is entertaining, but in ways that can not threaten" (Tour # 3). Although Juhasz describes her professorial self as "keen on refiguring power, expertise, and objectivity in the classroom," she argues that YouTube's seemingly flattened hierarchies actually present significant obstacles to creating "more collaborative, imaginative pedagogic interactions where there is a self-awareness about how embedded structures of power (race, class, gender, age, expertise) organize classroom participation, and access to learning" ("Learning from YouTube").

Nonetheless, cross-campus informal collaborative practices teaching with the site by YouTube critics like Juhasz, Vaidhyanathan and myself contribute to an emerging YouTube pedagogy that uses the Google-owned video sharing service as a way to dramatize the importance of audience and purpose in computer-mediated communication while also seeking to caution students against drawing easy analogies between the Internet and participatory learning or the Internet and participatory democracy that are propagated by Social Web hype. In 2008, Juhasz described the principles of curricular design at work in her course and her own skepticism that the site represented either a form of media activism or a DIY/punk ethos worth emulating:

> I am a professor of media studies whose work has focused upon the activist media of nonconformists. In the fall of 2007, I decided to look more closely at YouTube. The banal videos I regularly saw there did not align with the ethics underpinning the revolutionary discourses I study, nor those heralding the new powers of online social networking. So, I taught a course, "Learning from YouTube," about and also on the site: all class sessions and course work were posted as videos or comments and were open to the public. One press release later, and we actually became the media relay we were attempting to understand ("Learning the Five . . .").

To put forward coherent arguments about course materials to her students, Juhasz used the YouTube "playlist" feature to curate sequences of videos that she wanted her students to study with a critical eye.

At around the same time, Siva Vaidhyanathan was assigning group projects to his "Introduction to Digital Media" students that involved creating online videos about topics of immediate concern to college students such as the policing of bandwidth by campus authorities or the social surveillance and image vandalism made possible by Facebook. Students were encouraged to use Creative Commons licensed music to accompany the final products. Videos like "Restricted Knowledge?" and "Facebook World"[1] were posted on his popular Sivacracy blog along with praise from him as a teacher.

Juhasz describes her version of a sustained experiment with YouTube pedagogy as a risk-taking venture in which students both competed to create videos that might garner a million views and provided critical reflection about the depiction of race, gender, class and sexuality in the "postmodern television" of their computer screens. Juhasz had to defend herself when she found herself mocked on news broadcasts for offering a "laugher" course sarcastically described as "tough" by one local news anchor who compared it to a "leisure skills development" class from his own college career ("Learning from YouTube on TV"). Juhasz later explained to Fox Television that she was concerned with improving the "quality of conversation" and "asking serious questions" as students explored six different research areas in her course ("Fox and Friends . . .").

Information-sharing about these YouTube pedagogies wasn't fostered by formal knowledge work supported by professional associations, philanthropic organizations, or scholarly journals devoted to teaching with and about technology. Instead, ideas for teaching with YouTube generally circulated through informal collegial contacts in which faculty teaching with YouTube shared their teaching experiences and pedagogical experiments. These networks of generally like-minded people were also sustained by conversations

and collaborations between academic blogs. Classroom stories from Juhasz's *MediaPraxis,* Vaidhyanathan's now defunct *Sivacracy,* Michael Wesch's *Digital Ethnography,* and my own blog *Virtualpolitik* informed our collective thinking about YouTube pedagogy.[2] I later became a blogger for the Digital Media and Learning Hub with experimenters like Howard Rheingold of the Social Media Classroom and Cathy Davidson of HASTAC, but this collective blog site with longer editorial production periods lacked the cross-classroom synchronous contact that I had found earlier with Juhasz, Vaidhyanathan, and Wesch.

Teaching Digital Rhetoric

I had tested out many of these principles of student direction, self-reflection, and attention to the interpellation performed by the Social Web in my own digital rhetoric class, which was offered at the University of California, Irvine in 2007 and 2008.[3] As we instructors brought YouTube into the classroom, with sometimes unpredictable results, we could also comment on each other's experiments by using the comment features of the blogging form. I initially tried to use YouTube's own tool for playlists, as Juhasz did, with subjects like "Vaudeville," "Parodies of Traditional Media," "Online Communities," and "Virtual Worlds" to organize and assign videos for class discussion, but I soon found myself dissatisfied with the playlist method of curation. Students often found themselves lost in the playlist; the crowded screens of YouTube constantly suggested other avenues of distraction and delight to pursue, other threads of association unrelated to course content. By that time, I had begun saving YouTube videos for my own scholarship with Zotero,[4] which proved to be a much better tool for preserving a video's metadata and documenting what I had seen before it was taken down because of copyright violations or creator embarrassment. I was interested in trying to find tools that better matched the purpose for which a given video was being annotated, shared and archived. As I searched for a good pedagogical solution, I also discussed the virtues of so-called "widget-based" teaching with Mark Marino of *Writer Response Theory.* Marino was fond of services like Pageflakes[5] that could update content for courses automatically with material pulled from RSS feeds, and he liked that YouTube could easily be embedded in the Pageflakes matrix.

After testing several possibilities in 2007, I decided to set up two kinds of YouTube "galleries" on Tumblr in 2008:

1) videos created by YouTube users with particular rhetorical conventions representing what Juhasz has called "NicheTube" or the parts of the site run by outsider communities with a strong sense of activism and group identity in practices of cultural resistance

2) YouTube videos essays that are critical of Social Web ideologies, which are created by interest groups, academics, activists and students.

To spur in-class discussion about online ethos and rhetorical conventions in NicheTube, I urged students to view galleries of "Coming Out Videos"[6] and "Disability Videos."[7] The former category offered an opportunity for the group to talk about speech acts and online performance, and the latter encouraged discussion about how people with autism, schizophrenia and other personality-altering disorders solve obstacles to their public presentations by expert shooting, editing and deploying other online image management techniques. In connection with these videos, students read Alan Turing's "Computing Machinery and Intelligence," Joshua Berman and Amy Bruckman's "The Turing Game: Exploring Identity in an Online Environment," material about queer youth online by danah boyd and Jonathan Alexander, and a section from Joseph Weizenbaum's *Computer Power and Human Reason.* The seminal readings about artificial intelligence from Turing and Weizenbaum were intended to encourage critical thinking about computation, gender, sexuality and rationality that could also be applied to the students' criticism of the YouTube videos.

Students were also eager to see model work for their final video essay projects, so there was considerable interest throughout the quarter in the video gallery that featured video essays about online privacy, network neutrality, software monopolies and information literacy and the video gallery with video essays[8] about copyright. In recent years, composition theorists have interrogated ideologies of originality that were once central to student instruction, as rhetoricians return to value imitation as one of the building blocks of learning the conventions and organizational strategies of a given genre. Imitation is also important in so-called "memes" on YouTube, and videos in the gallery often copied the techniques of other YouTube creators.[9]

At first, the model work galleries focused exclusively on video essays created by Juhasz, Wesch and other academics. It later expanded to include compositions that deployed clever uses of animated text, information graphics and digital compositing to criticize companies like Google or Facebook or policies that constrain digital rights. Soon, the gallery included videos by

Juhasz's Pitzer students, Vaidhyanathan's University of Virginia students, Wesch's Kansas State students, and my own students from previous years. In "I.D./self:: the new 'real,'" one of my students, an art major, created an original animated film that explored three online personae, who were defined by Facebook, online messaging and the massive, multiplayer, online role-playing game *World of Warcraft*. He used these scenarios to argue that online identities were as "real" as "real" identities because they reveal "interests," "fantasies" and "ideals." Another student, a prolific blogger and former Endgadget intern, created "Web 2.0 is about them, not you," which used carefully edited sequences of screen capture to assemble the online clues to show that top-rated seemingly independent blogs devoted to individual expression or artisanal opinion-making are actually likely to be part of gigantic media conglomerates that also control print and broadcast media.

Of course, using YouTube as a venue for pedagogical experimentation subjects students to its brute force mechanisms for policing content. For example, one of my students did a final video essay about the potential political power of the online fans of Stephen Colbert. This student soon found the entire audio track of his YouTube video erased because copyright-owner WMG had enforced their takedown privileges after a sound-matching algorithm apparently found incriminating audio signatures on the video. Even though the small snippet from the television show that the student had included should have fallen under fair use, because of its clearly critical context, neither student nor instructor could argue with an automated system. In another case, a video about the depiction of African-Americans on YouTube by one of Juhasz's groups was flagged by users for objectionable content, even though it critiqued offensive content that was unflagged elsewhere on the site and pointed out how some keywords were much more likely to be associated with blackness than others.

Abusive comments, community member harassment, and lawyers eager to defend the reputations of their corporate clients have made YouTube a hostile environment for many students. On the other hand, students appreciate the seeming freedom of having their own accounts and feeling like they can remove juvenilia once coursework has been graded. Uploading, viewing and commenting on YouTube videos provides marketing data for the company and potentially compromises student privacy; in other words, this freedom comes with a number of constraints. In looking at whether students continued to add content to their blogs and YouTube channels after the end of the grading period, I noticed an interesting phenomenon: many students chose to continue content-creation activities with accounts that they had set up for the class, sometimes years later, but many students also chose to delete their accounts entirely. I would argue that both groups of students learned the lessons about digital rhetoric that I was trying to teach, although they responded to their newfound knowledge about digital media very differently.

Problems for Instruction

YouTube poses a number of problems as an instructional tool, but it also offers a number of ways to combine media theory with media practice and to link criticism to production in the twenty-first-century classroom. To make these efforts successful, students need to know the risks of composing academic work for YouTube, and instructors need not only to disclose the costs of overconfidence in the liberatory potential of the Social Web but also to reach out to others trying out this technology in their courses.

[1] See ‹http://www.sivacracy.net/2008/04/another_cool_video_from_my_stu.html›.

[2] Wesch was generally less critical of using YouTube as a platform than the other participants, and argued that training his students in ethnography and participant-observation required that students not impose the kinds of value judgments that were central to the pedagogy of Juhasz and Vaidhyanathan.

[3] A new variant of this upper-division writing course will be offered at the University of California, San Diego in Winter of 2011, as part of the Culture, Art, and Technology program that I now direct. The syllabus is here: ‹http://losh.ucsd.edu/courses/publicrhetoric.html›.

[4] See ‹http://www.zotero.org/›.

[5] See ‹http://www.pageflakes.com/›.

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Community Media in the Digital Age

Colin Rhinesmith

Media literacy is one of the founding tenets of public access cable television. George Stoney, the father of public access television, understood that in order for the access project to be fully realized education would have to play a central role. Today learning with digital media happens at many public, educational, and governmental (PEG) access television stations, also known as community media centers. Here, the community is the classroom. Students learn about the mission of public access television as a free speech forum where a diversity of ideas can enhance civic life.

Community media forge an alternative space between the market and the state, and in that space the First Amendment is vigorously promoted. Apart from the public library, there may be no other public space where students can readily access fringe and radical voices alongside conservative and mainstream views. The term "community media" stands for free speech; ready access, participation, and education are vital components of that ideal. Critical thinking should be enmeshed into the theory, practice, and teaching of community media with digital video tools.

Participatory Video before YouTube

In the late 1960s, George Stoney joined the National Film Board of Canada's

Challenge for Change program. There he learned how to use video as a tool to build coalitions and in doing so he led citizens to use communications media to improve the quality of their lives (Boyle). Stoney approached the use of community media as a social process that brings people together to develop community and strengthen local democracy—projects that are often messy and ambiguous. In other words, his view of the pedagogy of community media is focused on process rather than on product.[1]

Stoney brought what he learned back to New York University, where he launched the Alternate Media Center. The AMC became the training ground for public access producers using local cable television systems. Through Stoney's visionary work, the AMC spawned the public access movement of the 1970s.

Today students continue to gain skills in public access centers across the United States by using computers and broadband technology. Many community media centers have incorporated new media tools to complement, but not replace, their cable access television channels. That is because cable access continues to be the weight-bearing wall that supports community media organizations as they experiment with new and innovative information and communication tools.[2] Teaching community media with digital video tools presents additional opportunities and challenges as the audience for community-produced programs becomes both local and global.

The pedagogy of digital community media connects local communication processes to national media systems. Students gain an understanding of the mechanics of cable and Internet networks and become conscious of how these procedures impact audiences. This awareness of communication infrastructure helps students learn how politics, economics, and the law influence media access and participation in local communities.

Although tools and distribution networks change, the pedagogical aim of community media remains the same. George Stoney's vision of community media recognizes that people will always have a need for humanistic communication. To that end, students will continue to need ongoing training with the latest technology and relevant infrastructure to address local information needs effectively. Ultimately, whether consciously or not, a student of community media engages not only in the process of digital media literacy but also in the development of community itself.

The Rise of the Mini-Cam

There are two main developments that help explain the digital video technology available to today's community media students. These developments involve camera size and recording format. In the 1970s, with the emergence of cable television, the Sony Portapak became a popular tool at public access centers. The size of the camera and the recording format of cassette tape changed significantly over time. Camcorders got smaller, and a variety of digital formats replaced analog tape. Video8, VHS, Betamax, Hi-8, Mini-DV, and DVD are just a few of the many formats that amateur video producers have encountered over the years. More recently, flash memory cards have become popular for recording and storage.

In 2006, Pure Digital Technologies Inc. released the Pure Digital Point & Shoot Video Camcorder, a low-cost, easy to use, video camera for the average enthusiast. For the first time, camcorders could capture moving images inside the camera without using tape—a significant moment in the evolution of digital video technology. Two years later, Pure Digital released the Flip Mino. Our community media center, Cambridge Community Television (CCTV), purchased a dozen of them for our training program. The Mino was sleeker than its predecessor and could hold sixty minutes of 640 x 480 pixel Standard Definition video. We soon learned that the camera quality was good enough to cablecast on CCTV's public access channels.

Of course, the inexpensive digital camcorder had its shortcomings, as well. In the beginning, CCTV producers taught the staff some important lessons about Flip Mino best practices, especially when it came to image stabilization, audio recording, and digital zoom. The image stabilization feature was not necessarily corrective; in fact it yielded images that were unstable and unnatural. It is best to remain as steady as possible when using the Flip Mino handheld, and our producers' videos improved significantly when they used tripods. As a result, viewers were able to spend less time watching shaky images and more time focused on content.

The second lesson of the Flip camera involved audio recording technique. CCTV staff members learned that it is critical for producers to be as close as possible to the source when recording audio. The camera's automatic audio compression and leveling features cause the noise floor to rise when the direct source, such as a person speaking, moves farther away. The camera does not have an input for an external microphone, so it is important for camera operators to be close to the source.

Producers must also pay attention to the distance between the lens and the subject. The camera has a digital zoom rather than an optical zoom. As a result, the image can become blurry when the zoom is activated. By learning about these three shortcomings of the Flip Mino camera, we were able to discover how to use the technology best, both for teaching and for learning.

The Flip Mino provided students and instructors with a handy way to learn and teach documentary and web media skills. The camera also helped to increase the amount of video produced for CCTV's cable channels and website. NeighborMedia citizen journalists at CCTV receive a Flip Mino camera when they join the program. They are encouraged to keep the cameras with them when they are out in the community. This way, when news breaks they are ready to cover it. Most importantly, citizen journalists are encouraged to use their cameras to engage with residents in the community through media. The Flip Mino is a perfect tool for learning with digital media in a community setting.

Learning with Digital Community Media

During the U.S. presidential election season in 2008, I taught a three-session course at Cambridge Community Television that focused on using Flip Mino cameras for community media production. The course combined documentary-style short-film production with "person on the street" newsgathering techniques. Students used digital video to take the pulse of the community as the election drew near. This approach is certainly not new—and was not intended to be so—but it had innovative aspects:

- Students learned about their physical surroundings and about the people in their community through their use of digital media.

- Students gained a better understanding of digital mapping technology and online video distribution tools. They used these skills to create a rich, interactive experience for their local and global audiences.

- Students learned with digital media in new ways by producing material for both cable access television and web-based platforms.

I assigned my students to interview Cambridge residents about their hopes for the next administration. In the process, the students gained a mastery of the Flip Mino camera and learned how to use multiple platforms to distribute their work. The videos were shown on CCTV's cable access television channels and were uploaded to CCTV's digital community network,[3] where residents left comments on each other's blogs to inspire civil discussion online. In addition, students learned how to "geotag" their videos using CCTV's Media Map, a feature that gave audiences new ways to experience actual places through virtual platforms.

In my video classes at CCTV, I often asked my students the following questions at the beginning of each course: What is your message? Who is your audience? How will your message reach that audience? My students are then asked to examine the impact of digitally mediated environments on traditional communication processes, by moving on to deeper questions, such as: What is your digital identity? Will it have an impact on your use of digital media? Is your digital performance space public or private? What impact will this space have on your project's design? How will the Web's permanence impact the design, implementation, and evaluation of the digital media you use? In other words, how does the virtual sphere, in addition to the cable medium, influence the outcome of a community media project in the digital age?

These questions required the students to think critically about using digital media production and distribution techniques to promote community voices. In the same way, George Stoney might have asked his students at AMC to consider the limitations and possibilities of the Sony Portapak video camera, cable access television, and the media system in which these tools existed back in the 1970s.

The assignment at CCTV was a great success. Students learned about the Flip Mino pros and cons, mentioned above, as they recorded conversations with a wide spectrum of Cambridge residents. CCTV is located in one of the most diverse neighborhoods in the city, and its large Haitian Creole, Portuguese, Spanish, and Arabic speaking populations use CCTV's cable channels to produce and receive information in their native languages. The students used the assignment to feature the city's diversity while enhancing civic dialogue.

During the three-session course, my students engaged the community by learning with digital media tools, techniques, and platforms. They discovered videoblogging by viewing examples of short-form, web-based documentaries. Before taking the course, they had thought videoblogging was nothing more than homemade videos about cats posted on YouTube. Through assignments

that focused on their own community, they discovered how to use digital media to expand their experience, their skills, and their understanding of the world.

Epilogue

The community is the classroom in the pedagogy of community media. Here, local residents come to the Community Media Center to learn with digital media. Students move beyond physical boundaries into online spaces. This process requires a particular awareness, responsibility, and sensitivity to the needs of residents when media production tools are brought into the community.

Instructors who teach at community media centers often include a diverse mix of people from faculty at local colleges and universities to amateur online video producers. The Internet has lowered barriers to entry for experts from all walks of life. Learning with digital media in community settings can introduce students to new ways of thinking about information that goes beyond the consumption of commercial media products. As a result, residents gain access to local knowledge as information is transferred from places-to-bits and bits-to-places to build stronger community through media.

[1] John W. Higgins highlighted the use of video as a process of social change in his article "Community Television and the Vision of Media Literacy, Social Action, and Empowerment."

[2] At the 2010 Alliance for Community Media Conference, Laurie Cirivello, Executive Director of the Grand Rapids Community Media Center, discussed the importance of cable access television to the funding structure of community media organizations and their view of computers and broadband technology as extensions of public, educational, and governmental access television.

[3] See ‹http://cctvcambridge.org›.

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The Virtual Cutting Room

Martin Lucas

When I show students a picture of the first film editing tool I used, they laugh, and I expect them to. The upright Moviola I learned on in the mid-nineteen-seventies looks like a cross between a Model A Ford and a Singer sewing machine. It actually featured a clutch and a brake. A quick side trip to Wikipedia tells me the Moviola was developed in 1924 out of a failed effort to make a home movie viewing apparatus—and it looks like it.

Today I edit on a laptop computer. It is quick. Unlike the Moviola or its replacement, the Steenbeck, it offers me a hundred sound tracks and a similar number of picture tracks. I can also add titles, do complex sound mixes, and create multilayered animated or montaged sequences, all things that used to demand a complex supporting industry behind the editor. Significantly, I can also, with a famous "push of a button," publish my creation to the world. I can train someone else to use a system like this fairly competently in a marathon weekend and have been doing so more or less since the first broadly available professional system, the AVID, came out in the early nineties.

When I first started teaching media production, it was as a member of the *Paper Tiger TV Collective*. We had an 80s agenda of putting the tools of media production in the hands of the audience. Our ideology was neatly expressed in a bumper stick we sold to make money.[1]

Don't Just Watch TV, Make It!

Our DIY approach was based on a radical notion that the production of culture, especially visual culture, was in the hands of large corporations who used the mass media to create their own agendas, namely to sell products, including war, using dubious methods, and that the only way to recapture democracy was to offer an alternative system for creating and distributing cultural information.

Significantly, this strategy included not only access to the means of producing visual media—cameras had been in the hands of artists since the sixties—but the platform for distribution, in our case the thousands of public access stations that sprang up in the wake of cable television in the U.S. A valuable lesson was to see media not in terms of objects or products but in terms of cultural-technological systems.

The Paper Tiger group owned a camera only sporadically. Our main tool was a video editing system, a large, clunky system with several decks and a controller. It was the editing that gave us a way of creating works that could "occupy the space of television" in a subversive, creative and exciting way. The homemade aesthetic garnered both praise and contempt then and now, but the message got through.

I first taught non-linear editing in the context of community media centers such as Manhattan's Downtown Community TV, where free classes supported a democratization of access during a period when the tools still had a high price tag.[2] Today I teach in a large public university. My students are almost all born after the advent of the digital media era. Their motivation for studying media production is various, but notions of self-expression, and ideas about jobs and careers in the media loom large. For my students, who can take a picture with a cell phone and send it from one side of the lecture hall to another without me being aware of it, it is this very ease that is in a way the biggest problem.

For me the first corrective is historical. A bit of the history of any software (and the predecessor methods it replaces) allows students to develop a sense of the factors that have gone into the design, both in terms of what problems it was designed to solve, and also, on whose behalf. The other thing this does is help situate the student as a cultural producer in a historical context.

Part of this is the mandate of a liberal arts university (which extends beyond technical training or the art school sandbox). The other is to try to get students to see the difference between knowing the software and actually knowing the skills. This difference is mystified by context; editing is presented as learning editing software, and by an industry that gives out, for instance, proficiency certificates for software.

A larger and more complex problem, one with philosophical implications for teaching and learning any software, is that the skill set of the software encourages certain kinds of thinking about the creation of media. This is the problem of any language: How can you say something in that language when there is no word for it? While the capabilities of software are amazing, they are still framed within its own world view, which has to have limits (defined by industry, needs of artists, platform capacities, etc.).

Finally, one cannot help but feel that the fact that most media production tools come from a handful of very large corporations is a concern. While the open-source movement has made strides, it cannot offer alternatives to most media software.

For now, all I can do is try to give students as nuanced a view as I can of the role of technology in society and encourage them to think of tools as things made by human beings. I try to incorporate reading from the history of science and history of technology, noting that this is particularly key for communication technologies that intersect with the self. But the best route that I've found is not in philosophical discussions, but through my own experience. I started with 16mm film, moved to reel-to-reel half inch video with a grease pencil, etc. I also share my early computer experiences with the Control Data 3600 machine ensconced in the basement of the math department at Berkeley where I first learned Fortran. I tell them about the punch cards we laboriously created for each line of code. I even, at the risk of some eye rolling, tell them about midnight trips to the math building to access the key punch machines, the modern equivalent of telling your grandchildren you walked five miles through the woods to get to school.

I also ask students, and mine often see themselves as creative types for whom math and technology are anathema, to think about what is under the hood: the nuts and bolts of binary numbers, sampling and color spaces. I ask them to contemplate the history of technology as a set of complex social interactions that are historically determined.

Over the last several years, I have worked with colleagues to conceptually redesign our courses for all incoming media students. No longer will film, video and emerging media be taught in separate silos. The vaunted convergence, one that we live with continually, needs its place in the classroom. With a small grant and a lot of work, we ended up with a new course. The biggest drawback is that it is a large lecture course. A raked auditorium, a projector and a PC make up the learning environment, one that is better designed for classic pedagogical models, where information is poured into empty, pitcher-type brains, than any modern idea about interactivity.

About five years ago, one of my favorite teaching tools was one that allowed for open, fast paced, and highly interactive discussions in easily designed fields using diagrams, text, numbers and pictures, very high speed. The tool I used was the chalkboard. It was then replaced by the whiteboard (where the hell are the markers!) and now by a computer and projector. Frankly, most digital tools are clunky in comparison. Some of them are actually pernicious. Edward Tufte's analysis of PowerPoint (there's no bullet list like Stalin's bullet list!) as based on an intensely hierarchical model of information delivery is relevant here. I think a genuinely interactive learning environment is still a thing of the future.

Any such utopian classroom cannot be based on naïve assumptions about the joys of communication with others. When the Internet first became a useable tool, I worked on several projects where grant money was available to link groups of students in different locations for discussions, for media production, or whatever. My end take is that these collaborations were difficult to maintain and not too helpful. The model for teaching technology that I have found the most useful is the Freire-based approach of the Educational Video Center[3] where New York high school students learn media production as a tool to help them engage with and critique the world around them. Power relations become apparent. The dimensions of the heavily mystified nature of working-class life in America emerges. Editing is a collaborative discussion/argument about the creation of meaning.

I teach both emerging media and video classes. The first time I taught an advanced web design class, I was nervous. I went to ask a colleague. "Don't worry, of course they'll know more than you will." In fact, promoting a culture of knowledge sharing was seen as central and natural. As the teacher, I quickly got over the ego problem of no longer being the fountain of all knowledge. Students pull stuff off line, copy code, ask each other how they did something, share tricks and problem solve. That type of approach is one I would like to foster more in other courses, where the craft tradition and hierarchies from the media industry tend to define teaching.

A Short History of Digital Editing

I remember, when I was just out of film school, sitting in a kitchen on the Lower East Side and being introduced to a young French engineer who was going out to California to work with George Lucas to develop some of the first digital sound-editing technology. That must have been the late 70s, but in my own experience it was not until AVID's non-linear editing systems started to emerge in the early 90s that filmmakers really made the switch to computer-based editing software. The AVID was an expensive system, with a lot of hardware for actually converting the analog media to a proprietary digital file format. Its interface created the form that virtually all systems use today: multiple windows for source material, viewing and a timeline for the edited sequences.

AVID was a real breakthrough. I remember getting a tour at a time just before computers became capable of encoding media digitally, of a system called "The Montage." It attempted to give editors the random access that video's linear tape form was incapable of. The unit took up most of a large room and had a wall covered about two dozen VHS decks loaded with duplicates of the same media shuttling back and forth. The idea was that when you wanted a shot, one of the decks would have the footage in position to edit quickly!

Another platform that brought media into the computer era was the Amiga Video Toaster, which could generate titles and effects for video live, effectively becoming a computer-based video switcher.

AVID always had challengers. Media 100, which came out in 1993, was a simple, cheap, easy to use and very high-quality system, and Adobe Premiere tended to find favor among new media developers for video content for CD-ROMs for instance.

While AVID still dominates the high end of the market, Apple's Final Cut Pro, a less expensive product, has taken over the mass market. Initially, AVID was based on a Mac platform, more congenial to any kind of graphics or media work. As the PC started to catch up in the mid-nineties, AVID switched

to Windows environment. Folklore has it that this is what prompted Steve Jobs to hook up with a group of ex-Macromedia designers to develop what became Final Cut Pro, a program that sold initially for a few hundred dollars compared with AVID's many thousands.

Today these two dominate the market, with Adobe Premiere playing a distant third. They all feature virtually identical front ends. This is in itself a kind of tragedy.

Alternatives? Why lament EMC2, the first non-linear editing software, one that, much more than any of the current products, took the idea of non-linearity to heart in a post-modern way? In fact, there are capabilities in the software that are only just being explored. The key to Final Cut Pro's success is that it operates as a shell around Apple's QuickTime media file system. This gives it a lot of flexibility. Final Cut Pro's ability to interact with XML, and QuickTime's ability to encode metadata make for interesting possibilities, such as collaborative editing, or even user-generated movies.

The Pros and Cons of Editing in the Digital Age

Easily the worst thing about media production software, particularly editing software, is that when someone learns it, they think they therefore know how to edit, how to tell stories with audiovisual material. Even more irksome is that then they get hired at a third of my salary as editors! As someone who learned editing as a craft with a long apprenticeship, one that I would be hard-pressed to make a living at now, I find this a bit distressing. It is typical. In fact, I have heard colleagues many years younger than me lamenting their lack of marketability because of a dated knowledge of media software.

The other thing is that the software is designed for and surrounded by the ideology of the creation of a seamless professional product. That seamlessness, at least from my cranky point of view, hides the ideological underpinnings of a system that needs constant examination by the media, not buttressing. Of course, one can create other kinds of media with these tools, and people do every day, but it is a danger.

In fact, on a simple level, editing and other media production tools are the products of large quasi-monopoly players. I try to make students aware these are proprietary tools. I talk about the open-source movement, although open-source graphics tools are very scarce. For video editing, they are mainly Linux-based.

On the positive side, non-linear editing tools are pretty easy to learn. For most people, the process is intuitive. On the media literacy side, learning editing teaches important lessons about the construction of media reality in a post-Matrix world.

In addition, there is a large idea about the emergence of sampling and "Remix Culture" and the interchangeability of media products under a digital regime that emerges from using editing software, software that allows one to mix and match pretty any type of digital media. Still images, mp3 audio, animation, archival material, family photos: all are grist for the editor's mill. The idea of standing on the shoulders of others emerges; editing demystifies the great man idea, and proprietary notions of cultural production.

The spread of video editing tools and education read does mean that individuals can learn to create media that competes with the products of the culture industry. This puts the camera on a par with the pen in a certain respect, a plus for democracy.

The editor's craft, although more or less unsung, is a wonderful education for the unsentimental eye, an education in seeing what is there.

Best Practice

My most successful approach to editing is usually an exercise using documentary footage, material that I edited myself. Much more than narrative documentary is made in the editing room. Space is defined, story is discovered, the viewer's interest engaged. The story I have used for years is based on an African cabbie who returns to his homeland. The two or three scenes that students can cut in a short time include drama, music, color and a lot of action. The ability for the students to wrestle with the raw material and come back with a story that takes viewers to a specific place is a compelling process that they remember. In addition, while there is a possible charge of exoticism, the material I use came from a film whose goal was to give viewers insight into the plight of ecological refugees from the Sahel, surely preferable to patriarchal promotional material: the famous Gunsmoke episode that a consultation with YouTube will confirm is still, fifty years later, the favored material for many editing courses.[4]

In fact, culturally-bound definitions of narrativity are always a ponder. I have taught non-linear video editing in Siberia to the presumed cultural heirs of

Sergei Eisenstein, and in Africa to Africans with a very different history of representation. The trick, whether in the US or in Africa, is how to use the tools we have to produce new meanings, rather than reducing new worlds to the trite banality of mass media's interpretations.

No software can do that alone. What is needed is a comprehensive framework for teaching, one that is neither technologically deterministic, nor technophobic, one that links ideas about literacy and critical thinking with ideas about cultural production and the role of technology.

[1] The page ‹http://papertiger.org/history includes a downloadable bibliography›.

[2] Downtown Community TV Center was founded in Lower Manhattan in 1972 by Jon Alpert and Keiko Tsuno. See ‹http://www.dctvny.org/›.

[3] Steven Goodman's *Teaching Youth Media: A Critical Guide to Literacy, Video Production & Social Change* gives a good overview of the EVC pedagogical approach. See also ‹http://www.evc.org/›.

[4] Various versions of this material can be found with a Youtube search for "Gunsmoke Edit," "Gunsmoke editing exercise," etc.

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Learning with Handbrake
A Ripping Story

Kevin Hamilton

Star Wars famously begins *in medias res*. From the start, we read and hear references to characters and conflicts about which we know nothing, and no narrator comes to our aid. This well-worn convention, in concert with the use of the neologism (an invented word that is spoken, comprehended by the characters but never defined for the audience) has come to play a central role in science fiction, and indeed in most dramatic representations of technology in popular cinema. From Douglas Adams to *Battlestar Galactica,* fans seem to derive pleasure in unexplained technologies, bewildering acronyms and opaque policy debates.

The same does not hold true in the classroom, where students also enter a story already in progress. Even the most seasoned fans of consumer technologies, when introduced to a technical task, are likely to prefer that the story begin where they enter—not where the instructor entered, or where the technology began. Refer to a technology by its proper name—say, by describing Radio Corporation of America or component video cables when referring to those red, white and yellow plugs on the back of a DVD player—and you are likely to be met with confusion, and perhaps even a retreat from the learning process. For many, to experience technology as a story in process is to lose one's footing in an already unsteady space.

Those who teach with technologies know that understanding the story of a tool, at least its precedent if not its origins, is key to successful use. Marshall McLuhan and others pointed to how each new technology borrows from, and mediates, its predecessor. For some, a photograph was first a kind of drawing, just as for others a webcam is a kind of phone. Instructors who teach with digital media rely on their knowledge of past technologies to teach the current tools. I have found that making a technology's history explicit and experiential for students, even at the expense of time and convenience, improves their understanding and prepares them for inevitable future change.

For students of cinema production or criticism, acquiring clips of mainstream films in digital form for use in presentations or remixes has long been a difficult chore. One can teach about fair use and copyright in the abstract without much difficulty. But students and instructors face persistent challenges in the legal maze created by changing copyright laws and their consequent effects on consumer technologies. Adept instructors know that this is no mere annoyance, however, but a crystallization of the experience of all technologies, subject as they are to changes in manufacture and policy. The ongoing story of how producers and consumers wrestle over control of media formats offers an excellent opportunity for embedding skill acquisition in an orientation to the dynamics of public space and media.

Students today enter the story at a period of apparent calm. In the summer of 2010, the Library of Congress copyright office granted exemptions to the Digital Millennium Copyright Act for artists, educators and students who circumvent the anti-copyright protection measures included on DVDs and other media delivery formats. For those inclined to take advantage of this new legal freedom, there is at least one easy, open-source software package to aid in this process: a program called Handbrake.

Handbrake[1] presents, for a variety of operating systems, a friendly interface for converting most DVDs, in whole or in part, to digital video formats that can be edited or included in lecture presentations or websites. Other open-source programs such as Mac-the-Ripper or MPEG Streamclip perform as well or better, but Handbrake presents the experience of ripping DVD video and audio as a smooth, user-friendly and non-transgressive process. For those students fortunate enough to find Handbrake installed on their school's computers (a rare thing, given how fearful many Information Technology departments are of incurring lawsuits), there seems to be no story at all to the acquisition of copyrighted video for educational or artistic use.

Now in version 0.9.4, Handbrake debuted in 2003, and ranks as the most downloaded video conversion tool on the media news site CNET.[2] The software was originally developed as an application for the BeOS operating system, an early competitor to Macintosh and Windows. Handbrake's designer, Eric Petit, would go on to help develop two other highly popular open source applications—the VLC[3] media player and Transmission, a popular torrent-sharing program. Petit developed Handbrake within the three years following the release of the DeCSS program, a published hack that first cracked the anti-piracy measures with which video and audio are encoded on most commercial DVDs. Handbrake languished after an initial push, revived by a new group with Petit's blessing in early 2006 (many of whom were likely aiming for easy ways to get material transferred from DVDs to the new video iPod.)

Today—for a short while, anyway—any student who is looking to extract a scene from a Hollywood-produced DVD for use in presentations or remixes can rely on Handbrake to do the job. Before tools like Handbrake were available, acquiring copyrighted material for Fair Use adoption was quite the moving target. To survey this story—which I do in the classroom when teaching media acquisition—is to tour the complicated interweaving of infrastructure, media, policy, government and private industry interests that produce most mass media forms. Some key concepts in this story include: differences between analog and digital signals; definitions of Fair Use and Public Domain; scrambling and encryption; format evolution, resolution and data compression.

Before the advent of the DVD, those with access to analog-to-digital conversion hardware could, with mixed success, convert a VHS copy (analog tape) of a film to digital form. As early as 1995, Apple offered such possibilities to a consumer-level market through the inclusion of analog video inputs—those familiar red, white and yellow ports—on some Power Mac computers. With the aid of video capture software, one could digitally sample portions of incoming analog video and audio signals, producing digital video files for use in editing or presentation.

As digital video cameras entered the consumer market, one could accomplish the same task using the analog-to-digital conversion chips included in some camera hardware. As in those early Power Mac computers, many of

the first digital video cameras featured those familiar RCA ports, inviting an exploratory pairing with a VHS deck or even an early DVD player. The resulting digital video information, stored on a mini-DV tape, could then be easily imported to computer without re-digitizing. Standalone conversion boxes even entered the market, little "crossroads" devices that converted analog signals to digital information, or vice versa.

A few challenges already littered this landscape of apparent cross-platform compatibility. First, most Hollywood-produced VHS tapes featured a hidden signal designed to thwart dubbing. If one were to dub an original VHS tape using two VCR decks, this hidden signal would confuse the recording deck through the presence of extraneous pulses in the magnetically-recorded video signal. The recording deck, attempting to compensate for the extra information, would adjust the image to near-darkness or near-white, rendering the film unwatchable. Some analog-to-digital conversion chips detected this signal, some did not, so digitizing VHS tapes became a matter of trial-and-error with different computers. Likewise, some digital video cameras and conversion boxes would detect the signal and shut down during the digitization process. The only way around this roadblock, the product of a single company called Macrovision (or, more recently, Rovi Corporation), short of trying a new combination of equipment, was to build a filter circuit from electronic components.

No solution to this problem seemed foolproof, as the producers of computers, video display cards and cameras seemed to be changing their hardware in response to industry pressure to prevent such processes. Composite video (RCA) inputs would come and go on Macintosh computers; eventually only professional grade digital video cameras would include analog-to-digital conversion from outside sources, and Sony even ceased production of their highly popular standalone conversion box, the DVMC-DA2.

At first, the emergence of DVDs offered a seeming solution to this dynamic problem because the information included would already be digitized. Instead, consumers soon discovered new obstacles. A DVD may have looked enough like a Compact Disc to promise a plethora of data for acquisition and adoption, but those who eagerly inserted a commercial DVD into their new DVD-ready computer were likely met with an unpleasant surprise. The video files were hidden or encrypted on these discs, tucked away where no casual browser could find them. Apple even built in software measures to prevent screen-capture of DVDs; attempts to record even a still image from Apple's DVD Player program as a digital file would produce only a black screen where the monitor displayed a paused film. Creative consumers were forced to send the DVD information as an analog signal back through analog-to-digital conversion boxes, re-digitizing a signal which had already been encoded once from its original film source. As the necessary hardware for that process was also growing scarce, this was no easy prospect.

In October 1998, President Bill Clinton signed the Digital Millennium Copyright Act into law, including as a major and radical requirement that all hardware designed to accept analog video signals be equipped with technology sold by the Macrovision corporation to detect its anti-piracy signal. Any variation found among different products' adherence to such practices was soon quashed, rendering all gear produced before the Act both illegal and desirable.

When "DVD Jon" Lech Johansen released his DeCSS program designed to unscramble commercial DVDs in 1999, tech-savvy students and educators gained a new, if illegal, way around the problem of acquiring material for use in the classroom. It took some time for this technology to find its way into the hands of students and instructors who weren't used to installing software, let alone searching for obscure hacks. In the first years following Johansen's release of DeCSS, various decryption tools would come and go in relation to developer interests, countermeasures in hardware and software development, and legal threats. Handbrake is the latest of these, the most enduring and most user-friendly. Though it hasn't included the DeCSS program for descrambling DVDs for several versions now (it relies instead on users installing DeCSS elsewhere on the computer), use of Handbrake for classroom purposes was, for the most part, illegal until summer of 2010. Only now can a student or instructor use such means of circumvention in support of Fair Use or education without fear of legal recrimination.

I have yet to teach in a facility where the computer lab includes Handbrake or an equivalent, or which allows students to install downloaded software. Yet since 2000, I have taught a variety of courses wherein acquisition of commercially-produced video plays a part. In the interest of learning about sound in film, I require students to acquire a clip and then produce alternate soundtracks for it, using microphones and found material. Long before the rise of fake movie trailers as viral videos, my students were creating new

teasers for movies that didn't exist, using footage acquired from commercial VHS and DVD sources. We've even used scenes from commercial cinema to create video prototypes for new interactive products or scenarios. Further, my own presentations on depictions of technology in cinema regularly rely on imported footage.

Each time I teach a subject that requires such work, I introduce the technical task at hand by leading students through a series of exercises that reflect the story of media's "protection" and "liberation" through debates and policies around copyright law. Our first session on the subject starts with a stack of VHS decks and tapes, which in some cases we must hook up ourselves to any camera or conversion boxes that might still be around. We have a first try at digitizing footage using these decks. Some students are immediately successful (depending on the make and models of the deck and tape, which does or doesn't pick up a Macrovision signal). Others, after encountering a problem, try a different deck, or even switch to using a DVD player. At that stage, even a transfer from a DVD player via analog signal is blocked by some of the cameras or conversion boxes; students will have to trade around different boxes and cameras to get the right combination. A film recorded from television broadcast behaves differently than a purchased DVD; new cameras behave differently than old cameras; fidelity varies across each format and hardware pairing.

As a last resort, some students will even switch to videotaping a television screen while playing back the desired DVD passage, producing a low-quality version that might still serve the purpose of the projects, potentially even adding an interesting new layer of mediation to the image.

Once we've walked through these different methods in the classroom, I'll point students to Handbrake online, showing them where and how to download the program on a computer for which they have administrative privileges. The last choice I typically leave them with is this: if they would rather not use copyrighted material, they are welcome to use unencrypted video from the public domain, imported through similar methods from videos or DVDs in our institution's library. There exists a danger, in light of consumerism's penchant for equating transgression with personal expression, to present appropriation or circumvention as not merely a right, but as a moral imperative. In the end I want each student to make their own choice about how to navigate these boundaries.

Digitization is but one of many ways to create a signal, just as encryption is but one of many ways to disrupt reception of that signal. To inhabit these differences is to experience information technologies as truly medial, contested and produced. To physically attempt multiple methods of recording at various levels of fidelity to the original is to connect resolution and image quality to debates in which more than faithful transmission is at stake.

By turning an apparently settled story into a much longer and fragmentary process, I hope to increase comprehension of present technologies and to prepare students for future changes. Comprehension in this case requires performing the task. Capturing footage from a VHS tape using video editing software may seem or even be inferior to downloading a YouTube clip using Vixy or KeepVid, but the two processes follow very different technical and legal arcs, and thus require distinctly different kinds of participation in the production of public media spaces. I hope to see students making choices in these spaces that reflect thoughtful deliberation about their roles as consumers and citizens.

The DVD is of course fading from the consumer sphere, to be replaced by digital video recorders, on-demand streaming, and files purchased or leased from online entertainment brokers. Tomorrow's student faces still newer challenges in acquiring clips for use in learning and creative production. In the future I may start with Handbrake and the DVD as the beginning of my story in the classroom, reaching back to obsolete media to provide analogies and metaphors for understanding newer processes of decryption and re-encryption. However this story develops, I plan to always place students a little farther back in the narrative than they might be used to.

The stories they know of predetermined access modes and smoothly progressing standards of fidelity are all too familiar and seamless. By re-introducing some seams into the process, I hope to call attention to how our present media surfaces came into their present shape, to invite students to play an active role in the next steps of their development as citizens, consumers and producers. Such active knowledge requires thinking through doing. We need to occasionally rehearse or revisit the bodily motions of previous routines; in this way, we incorporate the memory of old ways into our intelligent use and adoption of new tools.

[1] See ‹http://www.handbrake.com/›.

[2] See ‹http://www.cnet.com/›.

[3] See ‹http://www.videolan.org/›.

Mind-Mapping Inside and Outside of the Classroom

D.E. Wittkower

Students who take my courses have neither the desire nor expectation that they will learn anything about digital media. My use of digital media in the classroom is reinforced by a belief that familiarity with new media and digital literacy will be of significant value in their future lives, but is primarily motivated by a belief that digital media offer significant new opportunities for teaching and learning.

In the course I teach most frequently, "Business Ethics," I have frequently redesigned course structure, delivery and activities. While other colleges and universities are beginning pilot programs where iPads are given to all students, I continue to have students who do not have a home computer of any kind, but use on-campus labs to do all their work, which they store a semester at a time on thumb drives. Some of my students have not become comfortable composing on a computer and write all their work by hand before "typing it in" to a computer. Some live in rural areas where only dialup Internet access is available.

These circumstances both limit my use of digital media and make it all the more imperative. I must take care not to disadvantage students who are behind on the learning curve or who lack easy access to digital technology, but if I let

these students complete their degree without making some real progress in that learning curve, the value of their degree will be greatly diminished.

After trying different approaches for two years, I abandoned student blogging assignments. While some students did a great job and gained much from the process, many students performed poorly and hated the experience. They did not understand the format of a blog post: I told them to post a news story related to class and to comment on it, but they would not always include a news story, would sometimes simply summarize the material in the story, or would give a purely personal and diaristic response. In both WordPress and Blogger, students did not succeed in reliably posting links, either by using the website GUIs or after in-class instruction in basic HTML. The links posted were very often off-topic, and tended to be either about sports or political scandals not connected to business ethics. Comments students left for one another often did not further the conversations, but tended to simply agree with and reiterate the original posts. Several times, I had to delete racist posts.

Much of the problem, I believe, came from their simple lack of familiarity with the platform. Many students reported that they had never read a blog. I suspect that those who had read blogs had likely read blogs centered on sports, entertainment news, or politics, and thus were not likely to have thorough, thoughtful postings and reasonable comments modeled for them in their previous experience. Had I asked students who had never read a newspaper to write a newspaper article, I would not have been surprised if style, tone and structure were completely off. Why should I be surprised when the same thing occurs with a blog post? Blogging is a specific expressive form that is part of my culture and daily life but simply is not a part of theirs.

There are certainly other elements of digital media that are more familiar to all of my students, and I have had more success teaching digital media related to these elements. Three years ago, I got rid of my commercially-produced textbook in "Introduction to Philosophy" and produced a reader of my own selections from Plato, Descartes, Hume, Kant and Nietzsche. All translations used are in the public domain. Other LibriVox volunteers had recorded some of these texts in public domain audio book form—the rest I recorded for LibriVox myself, so that students could listen to the entire text for the class in audiobook form. The reader was provided to students in PDF format for ease of access and keyword-searchability. I continue to require students to purchase a printed copy, produced by the campus copy services at a cost to the student of less than $15, so that they are more likely to have the text with them in class, since only a small percentage have laptops that they use in class.

The digital reader/listener format has provided a variety of benefits. Poor students often choose not to purchase textbooks, either using the library's copy or borrowing a copy from another student, which produces numerous severe disadvantages including irregular access to course materials, the inability to refer to materials at critical moments such as before exams, a lack of access to materials in class, and the social undesirability of annotating the text itself. These same students are also less likely to have easy access to computers, and sometimes would still choose not to purchase the textbook despite the greatly lowered cost. Overall, though, ease of access was greatly improved by the new reader. Additionally, it seems that nearly every student has an MP3 player. Students have reported reviewing course materials at work, in the gym, and during commutes, and seem to be well-trained in the multi-tasking skills that allow them to take advantage of flexible modes and locations of access to course materials—especially those students who have most to gain from this flexibility, such as those who have full-time jobs and children.

I am in the process of making similar changes to my "Business Ethics" course. I have eliminated our textbook: now our readings are drawn from journals on EBSCOhost and JSTOR, accesses to which students have already paid for through their tuition. Discussion is based around these and other online resources and digital learning objects, most of which can be downloaded and stored or printed, for those with unreliable or irregular off-campus computer or Internet access.

However, only so much can be done while depending solely on digital media with which students are already familiar and comfortable. Their familiarity with digital media like MP3s, M4Bs, PDFs and MPEGs is primarily as consumers, and by building on these consumer-oriented media uses, I do not meet my instructional goal of training students in leadership and self-reliance—for these goals, I have been experimenting with various different ways of using mind-mapping software. Mind maps, a versatile form of digital media, have allowed me to improve student learning in a way that leads to participatory assignments and construction of digital media rather than mere reception

and consumption. While I originally began using mind maps simply as an in-class presentation tool, out of a belief in the pedagogical bankruptcy of PowerPoint, the software has proven very adaptable to a variety of different kinds of content-rich, flexible, and analytic uses.

Concept-mapping was developed by Joseph Novak as a method of representing student understanding in order to better guide student instruction. Novak based this process primarily on David Ausubel's theory of knowledge and learning, based on models from Piaget and Gestalt psychology, which claimed that knowledge was fundamentally hierarchical in structure, and that the process of meaningful learning is constituted primarily by the subsumption of new concepts under existing and established categories. Novak has researched other applications of the concept map structure, including the use of learner-created maps in the learning process and the use of expert-created map in communication and presentation of material, as a "scaffolding" for learning.

While concept-mapping is clearly indebted to Novak's work in particular, the structure has been widely adapted and studied by others. Concept maps are used in brainstorming, in strict conceptual hierarchies, in decision trees, in evidentiary representation and in diagramming arguments. These different applications have been implemented in a variety of ways, and numerous empirical studies have been conducted on various implementation of these structurally-related applications, including use as a study method (Farrand, Hussain and Hennessy), as a student group assignment (Liu and Wang), as an individual in-class exercise (Liu, Chen and Chang), as an individual outside-class assignment (Abi-El-Mona and Abd-El-Khalick; Kokotovich; Wheeler and Collins), and as an in-class instructor-student collaborative activity (Näykki and Järvelä).

In this research, a "mind map" is often but inexactly distinguished from a "concept map." Most commonly, "mind maps" have a single central node, and include images, colors and free associations, often similar to brainstorming; while "concept maps" may have more than one central node and a stricter set of meanings in hierarchical relationships and connections, with little use of images and colors. Since neither consistently implies a particular methodology or application, I use the terms interchangeably. The maps that I utilize in instruction are mind maps insofar as they have only a single central node, but are concept maps insofar as they are highly structured and contain very few images.

Even in scholarly research, the exact structure of these maps is often ill-defined, and the terms "concept map" and "mind map" are best treated as family-resemblance terms, referring to a variety of different applications whose primary structural similarity may be quite superficial. The openness of the structure can be viewed as a feature rather than a bug, but it does make the applicability of empirical studies of the effectiveness of the technique problematic.

There are a great number of different mind-mapping programs available. I have neither investigated nor evaluated software that is not cost-free and cross-platform, as these are basic requirements for maximizing accessibility in keeping with my instructional goals. There is great variety among cost-free, cross-platform programs, including argument-map specific programs, such as Carneades, Athena and Araucaria; strongly structured mapping programs, such as FreeMind, SciPlore MindMapping and Freeplane; and more loosely structured mapping programs, such as XMind, Compendium, VUE and CmapTools.

I use FreeMind most frequently because it is simple and straightforward, allowing me to quickly construct maps for classroom use. It is lightweight enough to construct a map collaboratively in class; it has collapsible nodes, allowing me to create large maps with a great amount of detail without losing the "big picture." Further, it enables insertion of images, allows for limited use of HTML in nodes, and is easy to train students to use. Other software, however, present other kinds of advantages. FreeMind only supports a single center node, which limits the complexity that can be represented by the map. FreeMind does not allow edge-definition: the connections between parent and child nodes cannot be labeled. FreeMind is also particularly uninteresting in appearance.

I have used FreeMind in a number of different ways, and there are several more applications that seem valuable that I have not yet tried:

Expert-created maps

Maps of writing projects: This is similar to writing an outline, but I have found it more useful for gaining a large-scale grasp on what I plan to write about, what questions I am neglecting, and what I am spending too much time on. Also, with collapsible nodes, much more detail can be included in a map-based outline than in a traditional outline.

Maps of presentations: This is my most frequent use of the software. By structuring lecture notes into an outline format using a map with collapsible notes, I am able to present an entire presentation in a single document. The outline that I create for a paper can be expanded into the presentation itself. I put the mind map onscreen during the presentation, click through from topic to subtopic, refer forward and backward to different components present onscreen and collapse and expand nodes as we move forward through the presentation. The mind map can then be provided as a form of lecture notes. I have used a mind map of this sort as a replacement for PowerPoint both in class and in conference presentations.

Maps of recorded lectures: I am currently recording in-class lectures for use in distance education, where M4Bs of lectures will be provided along with a mind map of the presentation for the students to click through as the lecture progresses.

Maps of material to be presented: In my "Introduction to Philosophy" course, rather than mapping out my presentation of the material, I mapped out the material itself, producing, for example, a full paragraph-by-paragraph map of Descartes' *Meditations on First Philosophy.* Each day before class, I would map out the reading to be discussed that day in lieu of putting together lecture notes. This process divided up the work into manageable chunks and forced me to gain a more thorough and careful understanding of the text since I had to map out every argument in every paragraph, not only take notes on the parts I already planned to discuss. This map could then be used as an in-class reference, so we would all know exactly where we were in the text and what was happening in that section, and could also be provided to students in following semesters to use while doing the reading, prior to our discussion.

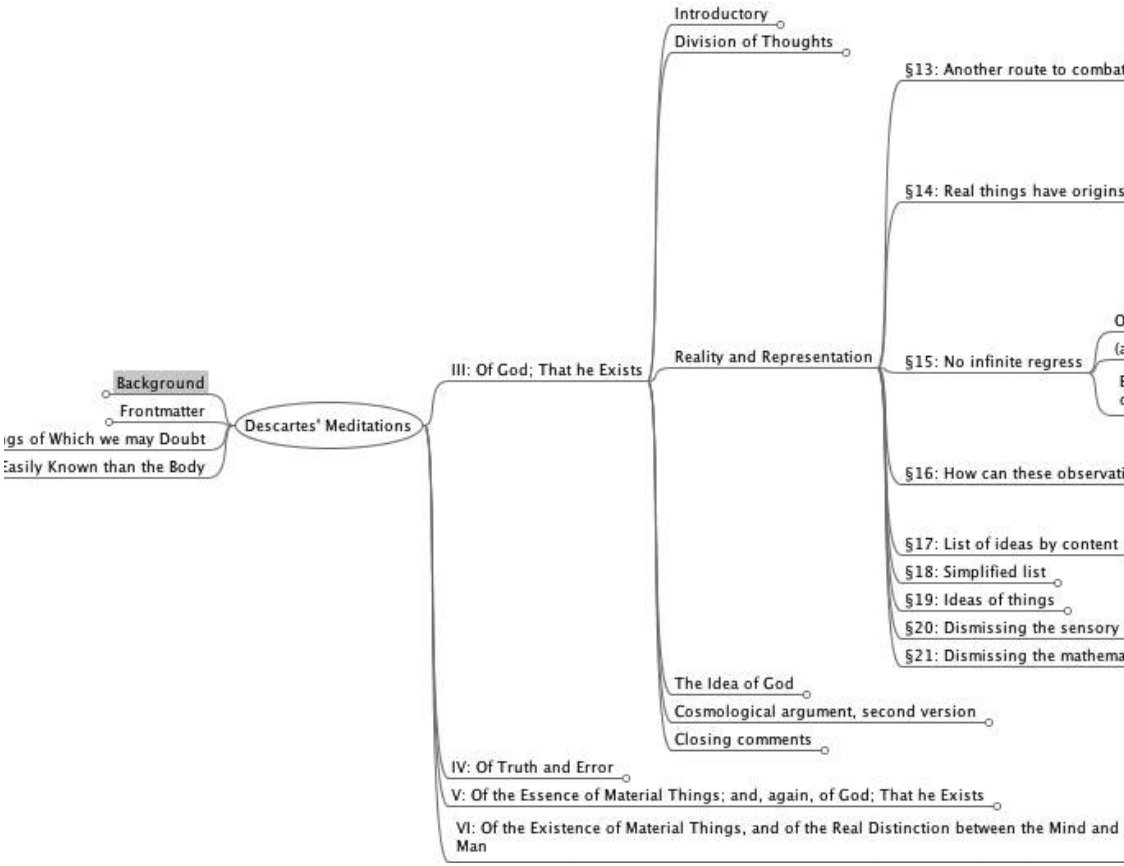
Learner-created maps

Maps as assessment tools: I have not yet tried this. I see two main methods. Students could be asked to map out their knowledge of a given subject area, and the map could be graded or used as feedback to determine what aspects of the subject area have not been sufficiently covered. Another obvious method would be to provide a student with a partial map, representing, for example, the argument structure within a reading assignment, and students would be assessed based on their success in "filling in the blanks."

Maps as study or mnemonic tools: I have not assigned this as a student activity, but some research has been conducted that suggests mind-mapping, in some forms at least, is more helpful for information retention than traditional study methods.

Maps as research/writing tools: I have not yet tried this, but I know of others who have, and who have seen success in this use. Just as students might be assigned to produce an outline of a paper before writing, a mind map can be assigned. The mind map structure makes omissions or a lack of detail in some sections more obvious than in a traditional outline, and forces students to categorize topics and subtopics precisely and with attention to the connections made between topics.

Maps as analytic tools: When doing research, in preparation for a writing assignment, I assigned students to map out the topics and arguments contained within their primary sources—in this case, articles from peer-reviewed journals. My in-class use of the software to present arguments from our reading served as a model for the assignment and a rubric was used detailing expectations about hierarchical organization, number of nodes and detail per node. Students reported that the assignment helped them gain a better understanding of the exact content and presuppositions of the argument under analysis, and forced them to slow down and exhibit care that they might not otherwise have taken.



Expert/Learner-created maps

Real-time mapping of in-class discussion: On several occasions, for class sessions based primarily around discussion rather than lecture, I have put a blank map on the overhead, perhaps with a few prompts, like "Truth" or "Justice." As we engaged in Socratic dialogue on these topics, I wrote in my questions and students' answers in real-time. This allowed us to have a wide-ranging conversation while ensuring that students did not become lost, and could keep in mind what had already been discussed and how the discussion had been led to the current proposition under consideration.

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Crowdmapping the Classroom with Ushahidi

Kenneth Rogers

Imagine for a moment the limited utility of a map in an airport terminal, a shopping plaza, or a university campus. When following the internal legend—the rules and cues each map sets for itself—it becomes rather easy to find one's way around. Trying to get from, say, the shopping plaza to the university, by contrast, would be quite another matter, as neither map would provide any meaningful orientation to a place outside of the one it exists to define. Maps like these construe bubble environments, self-contained places intentionally severed from their external contexts. Exit the confines of the airport or the university and the living city appears immense and irrepressible.

Online digital media, especially software designed specifically for pedagogical use, presents comparable obstacles in terms of connecting to that which is outside their purview. Educational platforms like Blackboard[1] and Finalsite[2] are inward-looking systems that have a conventional relationship to content and whose interaction design tends to encourage navigators to remain within the confines of the system, directing their attention back to its many nodes, pages, plug-ins and modules. Although internally consistent and relatively comprehensive in its features, these systems tend to feel closed off. Ask anyone who uses Blackboard to describe it, and the words "sterile," "clunky," and "institutional" are invariably invoked. What is underlying these sentiments

is the frustration that these interfaces do not participate in society, but form an enclosure from which to observe its workings from afar.

This failure is largely due to the tendency of educational software's interaction design to adopt a mimetic resemblance to the physical classroom, a strategic use of verisimilitude. Just as the namesake "Blackboard" suggests, the system derives its utility by forming a closed-circuit conduit with an actual space of learning, offering virtualized counterparts to the infrastructural and social elements therein. Features like drop boxes, rosters, discussion forums, notebooks, desktops, virtual office hours and (of course) blackboards concertedly affect symmetry and parity with the material world of education. This serves the institutional preference for molding digital media into the shape of the university rather than the opposite, which would entail permitting media to reshape the very idea of what a university is or might become. This kind of software treats the classroom as if it existed in isolation, so the digital classroom itself appears cut off from other social environments. These interfaces can reference other social spaces as embedded content, but face serious technological and conceptual challenges when attempting to connect to such spaces horizontally. Though the intent is to create a more seamless or intuitive integration between virtual and actual educational environments, in practice this superficial gesture toward blended learning through verisimilitude reinforces the idea of the classroom as a closed social space. As a consequence, the flow between the classroom and the media technology results in a double-ended pedagogical cul-de-sac.

Anyone who teaches knows full well the most productive occasions of successful pedagogy might begin in the classroom but become truly generative when they are directly linked to a student's life experience in an altogether different social environment. The classroom is not an institutional enclosure elevated and isolated away from the things examined within it; it is simply one social environment among others. Digital media employed there should by no means replicate the exact dimensions of classroom space, but should help reconfigure these dimensions so that they can more easily extend to spaces beyond. To do this, digital tools must possess a utility and applicability to more than one sphere of society. This can activate and politicize the work of the classroom and help create a distinction between the practice of the classroom and other social environments. Bringing these worlds into greater proximity is something that the use of online digital tools in the classroom can facilitate.

But facing a daunting array of choices, how does one select the correct digital tool for the task at hand? In earlier days of teaching with digital media, a kind of white lab coat mentality prevailed: experimentation for its own sake was encouraged; classes became oriented around a tool's functionality; it was assumed the more cutting-edge the tool, the more progressive the outcome of the class; and the use of a digital tool was treated as an inherent good, an end in itself. Now that the halcyon days of New Media have passed, the selection of such tools must be made more judiciously and on different grounds. In the current era of ubiquitous computing, the use of digital media is always already part of the classroom experience, so that efforts to contextualize specific digital tools should take priority over their functionality. The selection of a tool should begin with an understanding of the problem or issue it will be used to address. The digital tool should never be treated as a neutral set of potentials; it must be accounted for politically, culturally, and historically. Each digital tool arises out of a specific set of historical and material conditions and is intended to meet an immediate social need; thus it is incumbent upon the instructor to not simply teach with the tool but to explain the context in which it arose and the specific interests it serves.

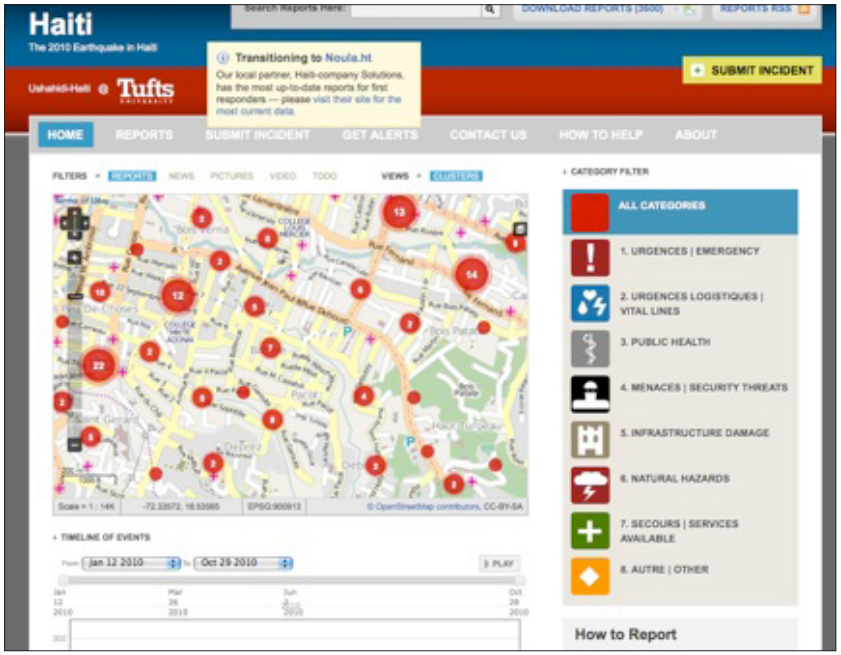
Returning to our opening example of Blackboard's interaction design, we can see how verisimilitude to the classroom has been deliberately created to maximize the more efficient management academic labor in order to cut administrative costs and cater to the exploding market within higher education for distance learning. Developing a digital environment that references the tactile, face-to-face relationship of a physical classroom becomes vital in order to build long-term acceptance of distance learning as a credible and legitimate wing of the university system. Distance learning is part of a much broader movement in higher education driven by a streamlined economic business model, the pressure for reduced overhead, the seeking of higher profit margins, and the delivering an educational "product" to students, who are treated more and more as consumers. Thus the seemingly neutral functionality of Blackboard is directly linked to the constellation of interests that have come to define the neoliberal educational-industrial complex. Fostering an awareness of such connections is an indispensible step in teaching what a specific digital tool actually does, and should always be part of the pedagogical process. Teaching how and why the very selection of digital tool already has profound social and political significance is an important step in shaping a critical consciousness about the existence of digital media in every aspect of everyday life.

The above paragraph details just a handful of topics I often consider in order to avoid reproducing the self-referential online media bubble environment, but there are many other issues to consider. In the interest of brevity, I devised a list of ten guidelines I always try to follow to effectively select and critically employ digital tools in the classroom. Not all of these recommendations can be met in every instance, but it helps to bear them in mind even if they cannot be realized.

- Do not use digital tools gratuitously or teach them as if learning the tool is an end in itself.
- The selection of a digital tool should always be determined from an immediate social issue or local problem that is the larger concern of the class and for which the tool might have some relevant impact. Repeatedly ask the question, is this tool relevant to address the issue or problem posed to the class?
- Select digital tools that are being used by social groups other than a classroom. Always demonstrate the connections of the digital tool to spaces/environments outside of the classroom. Who uses it? What immediate social purpose does it serve?
- Illustrate the direct cultural, social, political, historical and economic context out of which a given digital tool arose. This must be understood as part of its functionality.
- Avoid digital tools that replicate classroom space; seek tools that reconfigure it.
- Dispense with the laboratory method of teaching digital tools that privileges the tool's problem-solving capacity over and above the problem to which it is applied. Let the tool itself be reshaped by the problem.
- Wherever possible and appropriate, encourage the creative repurposing of a digital tool against its original intent.
- De-emphasize digital tools that are overly oriented around an individualized "user."
- Emphasize digital tools that have collaborative capacity and that produce cultural situations that facilitate collective engagement.
- Identify digital tools that can help sustain participation in a project long after the class is over.

One of the tools I have successfully used to break free of the digital classroom cul-de-sac is Ushahidi.[3] Ushahidi is an open-source, collaborative mapping platform that enables real-time data aggregation. It features a relatively simple interface that gathers information from any number of participants and, in real time, visually geotags that data with color-coded dots on an online map. A participant can upload photos, embed videos, write comments, or simply mark the date and time of an incident. Although it appears at first to be like another version of a custom Google or Geocommons map, what makes Ushahidi different is the speed and source of the data that is fed into the system. Like Twitter, the mapping occurs instantaneously and can be fed into the map from any number sources: via web browser, mobile phone, Smartphone, or email. This feature makes Ushahidi a powerful, online, rapid-response tool as it creates a living, changing map of an event from a collective, ground-level perspective while that event is still ongoing. Once mapped, the result becomes a living archive, searchable by category tag, time, or location, or filtered by subcategories like tags that contain embedded video or photographic evidence of an event. This makes Ushahidi a exemplar of the growing phenomenon of crowdmapping: mobilizing segments of a general population to pull in data that is assembled into a collaborative map that creates new ways of understanding a cultural or political moment that can potentially bypass official channels of interpretation.

Ushahidi, the word for "testimony" in Swahili, was developed by a team of programmers in response to the 2007-2008 election crisis in Kenya that lead to political instability and bloodshed. The beta version of the platform went online in 2008, and had some 45,000 participants reporting on violence



Monitoring the earthquake in Haiti, 2010.

over a period of four months. Since then, Ushahidi has been made available as an open-source installation and has been used for the purposes of monitoring elections, human rights violations, abuses of state power, the short supply of essential medicine and natural disasters. It was originally operative primarily in Africa, but has begun to appear in other parts of the global south, Mexico and the United States. One of the reasons for the platform's development and growth in Africa has to do with the penetration of mobile phone technology to large parts of the population where per-capita access to the Internet via computer lags far behind that of mobile technology. This makes the mobile phone a very enabling, affordable tool for direct democracy and spontaneous grassroots organization for groups who are otherwise technologically disenfranchised.

I used Ushahidi for a collective classroom project in a course taught at the University of California, Riverside, during in the fall of 2010. Titled "Empire Logistics," the collaborative research initiative sought to create awareness around the impact of the goods movement industry on "The Inland Empire," an area of Southern California that has been hit hardest by the subprime mortgage crisis of 2008. The Inland Empire continues to face some of the highest home foreclosure rates in the country, staggering unemployment far above the national average, a rise in homelessness, and a decline in the median wage. One of the reasons for the severity of the crash in this region is the structural link between the housing boom and the goods movement industry. An astonishing 40-plus percent of all the goods that enter the United States move through the Inland Empire, making it one of the largest distributions hubs in the country. The class project focused on Mira Loma, a census-designated area where there exists the highest density of warehouses in the United States, where big firms like Wal-Mart and Target house their goods in massive distribution centers before moving them to their retail outlets all over the country. Unsurprisingly, Mira Loma is also the epicenter for struggles in labor and environmental justice. Most notably, *Warehouse Workers United* (WWU)[4] has been organizing the goods movement workers to unionize and attain the power of collective bargaining against distribution firms like Wal-Mart and the sprawling complex of satellite temp agencies that provide an effective deterrent against unionization by destabilizing job security. Likewise, in the environmental realm, the *Center for Community Action and Environmental Justice* (CCAEJ)[5] is attempting to pressure local government to better regulate air quality in Mia Loma, which has some of the worst air pollution in the country.

After researching these and related issues in class, we decided Ushahidi would be an appropriate digital tool to facilitate these ongoing struggles and give the Mira Loma community a way of responding in real time to their adverse living and working conditions. In addition to meeting with the WWU and CCAEJ, students did outreach to local schools, health centers and residential areas to take a survey of what the needs of the community actually are, and this helped them designate categories that could be feasibly crowdmapped on our project website. From their research and outreach, the environmental justice group suggested geotagging readings of particulate matter, idling trucks in local school zones, and child asthma clusters. Similarly, the group working with WWU suggested geotagging categories like labor violations, OSHA complaints, police harassment of undocumented workers, withheld payments from temp agencies, and on-the-job injuries. Some of the same aspects of the interface that made Ushahidi successful for monitoring elections in Sudan, violence in Gaza and the earthquake in Haiti also became relevant to our own Ushahidi installation: the ability for direct response to an immediate social problem through accessible technology; the stimulation of a collective and participatory action that bypasses official media channels; and the forging of community and solidarity between related struggles.

The Empire Logistics[6] class project became an effective instance of hands-on learning that integrated a digital tool with other forms of research and social engagement. Students were able to connect the social space of the classroom and the various social and political issues directly adjacent to it. The project produced a critical awareness of how social media can facilitate this process and become a global tool for rapid response and direct action, but it also demonstrated how academic research is immediately germane to real-world problems. In order to launch a successful Ushahidi platform, the class had to work collectively to build a functional application and deliver a resource with actual utility for the community it was to serve. The problems they faced were less technical than social. The platform's success depended on the investigation of environmental politics, labor relations, urban planning, bubble economies, consumer culture, the housing industry, supply chain management and unemployment. In addition, a successful site demanded social outreach, so they learned directly from community organizers, union representatives, transportation workers and high school students. Developing all of these areas simultaneously became essential to the production of online collaborative mapping projects that could potentially have real and direct social utility for groups and communities engaged in ongoing struggles. The

digital tool did not determine the discourse, but simply became an extension of a conversation a community was already having with itself. Additionally, crowdmapping platforms are open-ended systems that can provide a sustainable presence well beyond the term of a single university course. The project can be handed off to a new class or motivated students can continue to amend old or develop new categories or sub-categories further down the line when faced with new challenges.

There are some limitations to the platform. API support of map providers is limited to Open Earth, Yahoo Map and Google Maps, and it only offers the most rudimentary version of those services. Outside of the crowdmapped data plotted onto it, the map cannot be customized in any other way. It is impossible to integrate specific spatial designations, data, or information that might serve as an overlay to the crowdmapped tags. What might census data about income, race and ethnicity look like when compared to crowdmapped data on particulate matter? How might Mira Loma's ratio of public park space to warehouse space appear if visually comparable on the same map? Questions such as these could be addressed with great effectiveness if Ushahidi's crowdmapping functionality supported a more flexible and customizable map interface. But the fundamental pedagogical value of Ushahidi as a digital tool continues to lie in its capacity to break out of the bubble environment and remap the social space of the classroom as an integrated contiguous part of society.

[1] See ‹http://www.blackboard.com/›.

[2] See ‹http://www.finalsite.com/›.

[3] See ‹http://ushahidi.com/›.

[4] See ‹http://www.warehouseworkersunited.org/›.

[5] See ‹http://www.ccaej.org/›.

[6] See ‹http://empirelogistics.org/›.

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Book Sprints and Booki
Re-Imagining How Textbooks are Produced

Adam Hyde

My role as an educator revolves around group processes. Essentially, I facilitate groups of people working together intensely in one room over a short period of time to produce a book. The book is made, from start to finish, in five days (or less). This process is known as a Book Sprint. Book Sprints start with a group of five-ten people, a facilitator, and an idea or a title for a book, and wrap up five days later, culminating in the production of a finished book. It is an infant methodology, just over three years old, and practiced predominantly within the community of FLOSS Manuals, an online community of 3000 people dedicated to developing free manuals about free software. While the methodology is still being defined and refined, it has proven that it can produce outstanding material within the realm of Free Software documentation. I am also pushing the Book Sprint into other content areas and narrative forms to see what, if any, its limits are. The most recent experiment is "An Open Web"[1] a book written in five days speculating on what an "Open Web" might be.

Book Sprints utilize collaborative online and offline environments. The only Book Sprint I know of before I did them used word processing documents, which were passed around via email between collaborators, and a Wiki for collecting the articles (Zenarro et al. 3). Part way through the process, collab-

"An Open Web." Cover Design: Laleh Torabi; Rendering: Mushon Zer-Aviv.

orators gathered in person to develop the outline in a one week intensive "Outline Sprint" and then proceeded to collaborate via email and Wiki over a period of four to six months. After the material was complete, the group passed the documents through several editing stages. The process cut the standard industry timeline down by thirty to fifty percent. Making a book from start to finish in four to six months is still pretty good in the publishing industry.

For the "Free, Libre and Open Source Software" (FLOSS) Manuals, however, four to six months was too long. We wanted to finish these in five days, so we needed a methodology for a faster turnaround and a more suitable tool set. Wikis might come to your mind immediately as a solution, as they did to us; we realized, however, that Wikis were not built with the right paradigm. Books are very structured and Wikis are not. That is the essence of it—I don't want to get into "future of the book" discussions. Although books can be many things, I am referring here to what most people mean by "book:" an object with a one-piece cover; several hundred pages; a table of contents; structured, readable and comprehensive content; self-contained material with very few references to other parts of the document; and careful use of outside references instead of a welter of back-and-forth hyperlinks. We built a system that could produce this kind of book (a paper book) in a Book Sprint environment. Zero to book in five days—plus about three minutes at the end to produce a book-formatted PDF ready to upload to a print-on-demand service or send to the local printer.

The first generation was built on T-Wiki and we pushed it to its outer limits with extensions built by Aleksandar Erkalovic and a PDF renderer built by Luka Frelih. Now we are onto the second generation—Booki (a Book-Wiki, if you will). It does the same job as the first tool set, but does it better; it's easier to use, more flexible, and it supports a greater number of possible output formats and types. Booki is built with online book production as its core paradigm. It is not a hack of a Wiki. As such it is immensely more powerful than our previous toolset, and it is fair to say it is opening our eyes to many new possibilities for book production and publishing.

While Booki is also built to assist Book Sprints, and it is hard to imagine a Book Sprint without it, there are limits to working digitally in a Book Sprint. Although we sometimes experience the highs of surprising networked collaboration—one sprint ("Introduction to the Command Line") was written almost entirely remotely in 2 days (Mako Hill, Free Software Foundation Board member and renown hacker, said it was the best book on its topic[2]) —there are also limits to digital media and digital networks. I believe that there is less knowledge passed through digital media communication channels when collaborating. I firmly believe this. If this were not the case, all of our Book Sprints would be remote, because this would cut down on logistics and costs. Text-based chat does not convey enough information, VOIP is terrible for more than two people at a time (and even then I wonder at its real usefulness in intensive collaboration), and email is too slow. Microblogging is as good as IRC in this instance (i.e. barely useful). Sneaker networks are not only faster but more fluid; they enable better shared understandings more quickly.

The end result of a Book Sprint is a book. Booki generates the book-formatted PDF in minutes and it can be immediately sent to a printer or uploaded to a print-on-demand service. That is a great thing to have at the end of a sprint, but it is also a living book that can be continually edited and improved, remixed, translated and recontextualised. That sounds too easy. While there is a lot of potential for reuse, the most important issue is the mandate to change the book. Books do not live by free licenses alone; they need help. They need the original collaborators to find avenues to keep the content alive and to pass on the mandate to change. It is possible to ignore this issue and try to encourage the original contributors to maintain the content themselves, but, despite good will, this seldom continues beyond some initial edits made immediately after the sprint ends. The book's original collaborators need to pass on the mandate to others; this is critical for the life of the book. As such, I discourage the use of terms like "authors" that denote legacies of

ownership and do not encourage new contributors to take up the mandate to improve the book. Instead, strategies revolve around keeping the participation threshold low (minimizing social filters, using open language, making Booki simpler and simpler to use) and welcoming new contributions. We also welcome forking books: taking a book and making it one's own in whatever way feels best.

Occasionally, however, sprinters caught up in the fervor of intensive production get worried about misappropriation or unethical use and erect barriers that do nothing to help and a lot to harm. They ask themselves questions like "What if someone takes the content and makes money? What if contributors spam the book? What if someone changes the tone of the book? Could contributions ruin it?" This is the ethical quandary put at the foot of freedom largely by the fears and protective necessities of the proprietary publishing industry. This is a common concern. My response is always, "Let it go. Let the content be free and you will be happily surprised by the results." The irony is that once sprinters are convinced of this idea, they find themselves "fighting" the default attitude; standard attitudes towards publishing and authorship mean it's hard work to get people to take up the freedoms of free content. Book Sprint collaborators (and free content developers in general) often need to put a lot of energy into reaching out to others to get them to take ownership of the material and make changes, but it can be done with the right approach.

"Booki and Book Sprints in Action" FLOSS Manuals is a library of cost-free manuals about free software. At least, that is the entry point for most people. They come to read comprehensive, clear manuals about how to use free software. The manuals are available online to read and also available to download as screen-formatted PDF. Many of the manuals can be bought as books from the print-on-demand service Lulu.[3] Over fifty manuals are available on the English site. There are five main FLOSS Manuals language sites: English, French, Farsi, Dutch, and Finnish, and there is a translation zone hosting many of these manuals in Burmese, Hindi, Russian, simplified Chinese, Spanish, and many other languages.

As well as the manuals, there are the people who produce the manuals: the FLOSS Manuals community. Numbering about 2500 people in total, the community works away in the background creating these manuals and updating, improving and translating them. Almost all of the work is voluntary, with only a few people being paid. Of those who are paid, very few are paid directly by FLOSS Manuals but garner resources through organizations that need specific content. It works very much like an ecology of open-source development except with "content" producers instead of developers.

FLOSS Manuals was established to solve the lack of quality documentation about free software. Many have tried to solve this problem with varying degrees of success. The Linux Documentation Project was probably the most successful attempt. It hosts a large amount of very useful and very technical documents. FLOSS Manuals, however, are aimed at "the user." That person (it could be you) works on the desktop and has a problem to solve that they would prefer to solve with free software *if only they knew how.* That's the target audience, and the manuals are generally written with a very friendly approach, holding the hand of the "newbie" and walking them through everything from "What is this software and what does it do?" to background concepts, installation and simple and advanced use.

The manuals are comprehensive and self-contained. They are generally written by "interested users" who wish to pass on their knowledge, but also occasionally involve the developers of the software. In some circumstances, the development of the manual has led to improvements in the software as a consequence of discussions between the developers and the documentation crew.

FLOSS Manuals' contributor community revolves around Booki for the isolated individual and collaborative development of books and Book Sprints. Both have proven to be very effective tools and hence we are pushing Book Sprints into other areas and we have also installed Booki on another domain[4] for anyone to use for any type of content.

Booki is being used a lot in both these contexts and hosts a lot of fantastic material. Many of the manuals in FLOSS Manuals are used in educational environments either as recommended or required texts.

The new domain, Booki.cc, is also seeing an increasing amount of content being developed within its domain. Betahaus,[5] the world's largest co-working space (based in Berlin) recently used it to sprint a book about co-working. The "Arctic Perspectives Initiative" is using it to produce a book on Arctic technologies to be published by the well-respected German publishing House Hatje Cantz. Albany University (New York State) is using it to develop text

books. There are numerous other excellent examples of Booki's utility, but at the same time it is a long way from achieving its potential.

One of the most exciting areas for potential is OER—Open Educational Resources. I hope we will soon see the formal integration of Book Sprints and Booki into curricula to create and improve textbooks. Although it is an uncommon practice, most people who ask for and participate in a sprint see it as a book production methodology. However, while we do produce books, a Book Sprint is as much as about learning as it is about writing. I would argue that in all circumstances the collaborators walk away having learned a great deal about the subject they have just created a book about.

There has been one such investigation of this with students lead by Kieran Nolan, a teacher at DkIT[6] in Ireland. Kieran asked students to create a book together using Booki. The project is for a module called "User Theories," which Kieran leads for fourth-year students in the BA (Honors) program in Communications and Creative Multimedia. The course looks at different interactive media types, different user groups and the creative ways in which people repurpose and reuse all the digital creation and distribution. In Kieran's words:

> The topic we had last week in class was 'Emotive Design' and trying to reduce user frustration with interactive media. In other words, looking at ideas of giving interactive products personality (for instance, avatars) so that users feel some sort of connection and less alienated to the product. So the students are being asked to reflect on the readings and come up with their own idea for an 'emotive interface.' (Booki Blog)

Rather than create the content individually, Kieran's students are asked to create a book collaboratively. Kieran likes the idea of Booki because the class can share their ideas, learn from each other, and practice using a collaborative online tool. The fact that students can produce a book from the result adds another dimension for Kieran: "It bridges the gap between digital and print media and produces a tangible product" (Booki Blog).

Kieran utilized the history feature of Booki to track a student's contribution to the project. The work will count for 15% of the final mark.

The students collaboratively produced a book called 'Emotive Design' using the Booki platform. Over the space of two weeks, the class collaborated through Booki both together in the lab and individually at home to create a compendium book of 21 original design concepts.

The final push on the project was made during a lab at the end of the December, when Ireland was hit with an unseasonably cold snap. More than half the class were stranded at home due to the snow but this was no obstacle to completing our project on time. Through Booki's live discussion function everyone could communicate effectively whilst piecing together the final chapters of our book, learning from each other's contributions and providing valuable peer feedback.

> The students I teach are well accustomed to using the online space as a learning environment. While a lot of material can be covered in the space of a single lecture, extra time is often needed to help students absorb and reach a deeper understanding of their source material. Online discussion of in class topics helps facilitate this. So too experiential learning is essential for reaching deep understanding of a subject. By allowing collaborative building and communication facilities, Booki addresses both of these concerns robustly. (Booki Blog)

This is a great initiative and a great first step. I hope to see more students writing their own textbooks with Booki, learning as they write and passing on the free textbook to the next year's students to improve. I am also eagerly awaiting for an enlightened institution to be the first to take on a Book Sprint to create textbooks. I am sure they would be positively surprised by the results, both by the quality of book produced and by what students learn in terms of content and collaboration.

[1] See ‹http://openweb.flossmanuals.net›.
[2] See ‹http://lists.flossmanuals.net/htdig.cgi/discuss-flossmanuals.net/2009-July/001924.html›.
[3] See ‹http://www.lulu.com/›.
[4] See ‹http://www.booki.cc/›.
[5] See ‹http://betahaus.de/›.
[6] See ‹http://www.dkit.ie/creativemedia/›.

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Productivity in the Age of Social Media
Freedom and Anti-Social

Fred Stutzman

The story I like to tell about Freedom involves a coffee shop in Chapel Hill, North Carolina. This coffee shop, in my estimation, had two great qualities. First, the beans were world-class, and second, the place lacked a Wi-Fi connection. The laptop warrior, multitasking and nursing refills to protect power outlets and desk space, had become such a fixity in coffee shop culture that it felt radically different to be in a place without Wi-Fi. This is not to say that people were not on laptops in this shop, but that it felt different. There was more conversation, more reading, more presence. Rather than being deeply immersed in a world with digital others, patrons were forced to be aware of each other, the physical space and the shared environment.

Then, as the story goes, everything changed. A neighbor of this coffee shop opened up a Wi-Fi access point. Patrons who had enjoyed writing productively, away from distraction, found themselves tempted by the siren call of the active Wi-Fi signal. Laptops that had previously been left at home were brought in to the shop. Squatters hoarded the few electrical outlets. Tables, around which patrons once rotated frequently, were now claimed for hours on end.

Like most origin stories, there is plenty of embellishment in my telling. Sure, things did change in the coffee shop, but I am certain my story is rife with

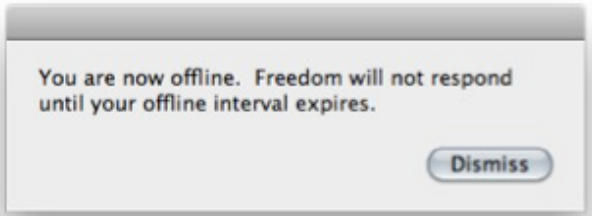
both overstatement and misattribution. Nevertheless, it was this episode that prompted discussions with my friends Sarita Yardi and Jacob Kramer-Duffield. As connectivity increased and devices became smaller, we wondered, how would we ever be able to get away from the persistent hum of Internet connection? These conversations led to my creation of Freedom, a little piece of software that provides "freedom" from the Internet by locking you offline.

Finding Freedom

For society to value a strange little piece of software like Freedom, it must fit into a larger narrative. The challenge of this chapter is to disentangle the narrative, and to explore what the popularity of this software says about us. Before I begin this endeavor, though, I will properly introduce Freedom.

Initially designed in 2008, and written for the Mac, Freedom is a small application that locks one's computer offline. Freedom is simple: one starts up Freedom, tells Freedom how long it should run (up to eight hours) and enters a password. Once Freedom is running, all network adapters (wireless, ethernet) are disabled. The adapters remain locked-out for any period of time specified. The only way to get back online while Freedom is running is to reboot the computer, a generally bothersome task. According to Freedom's fans, this nominal restriction is effective, allowing for lengthy periods of "freedom" from the Internet.

In 2010, I developed a Windows version of Freedom and a companion application called Anti-Social. Like Freedom, Anti-Social restricts access to the net, but only selectively, blocking "social" sites such as Facebook, Twitter and Match.com (over 100 sites in total). According to my survey of Freedom and Anti-Social purchasers, the software is popular among students, accounting for 36% of the purchases, and educators, accounting for another 18%. It also popular among professional writers and editors. The software seems



Freedom

Anti-social

to be equally popular among males and females, and across income ranges. Freedom's partisans seem to be unified in that their work tends involves large, individually-focused complex tasks, and they spend a lot of time on the computer.

Freedom's Narrative

As I previously suggested, software like Freedom and Anti-Social can only be valued when they exist in a larger, social narrative. The Social Web, with its rich articulation of connections between people and products, its ever-present hum of activity and its constant participatory obligation, seems to create the perfect location for this narrative.

Analysts of the Social Web are keenly interested in its impact on culture. Henry Jenkins, a prominent scholar of the rhetoric of popular culture, argues that the Social Web enables "participatory culture," where meaning is co-constructed between people, products, and organizations. The sociologist Manuel Castells, visionary scholar of networks, identifies the globalizing aspects of hyper-connection, leading to both the creation of "Internet culture" and changing local cultures. In the Social Web, we see these ideas made real and we sense the powerful effect on both local and global cultures.

We are drawn to the Social Web for its strong participatory ideals and obligations, its powerful informational uses, and its ability to construct cultures that do not singularly depend on place. But, as the narrative goes, time spent on the Social Web is frivolous, it is for those with time to waste, it is inauthentic when compared to "real-world" encounters. This narrative has been consistently applied to social technologies: the telegraph (e.g., Standage), the telephone (Fischer; Marvin), the mobile telephone (Ling; Ito et al.). Be that

as it may, the narrative urges us to look at the Social Web as snacking: we should refrain from overdoing it.

While it is this simplistic narrative that allows Freedom to enter the collective imagination, the goal of this chapter is to challenge this thinking. I do not deny that the Social Web is a time suck, I do not deny that I have personally wasted hours on social websites when important projects loomed; not denying these facts is much like not denying humanity. Rather, I seek to identify problems with the narrative, problems that have implications for digital media and learning. Particularly, I wish to address problems with devices of work, and the validity of singular focus.

Problems with Devices

It is not controversial to claim that the dominant ideology of computing in the modern era has been "bigger, better, faster." In fact, this ideology—the connection between technological progress and advancement as a civilization—has provided structure for the way we think about ourselves and other societies for hundreds of years. In the epilogue to his book Machines as the Measures of Men, Michael Adas writes:

> The long-standing assumption that technological innovation was essential to progressive social development came to be viewed in terms of a necessary association between mechanization and modernity. As Richard Wilson has argued, in American thinking, the "machine and all of its manifestations—as an object, a process, and ultimately a symbol—became the fundamental fact of modernism. (410)

Adas illustrates the point that modernity, and the logic of modernity, are tightly coupled with scientific and technological advancement. This ideology is particularly pervasive in the computing industry. Ruth Schwartz Cowan argues in *A Social History of Technology* that, since the early days of computing, the industry has been driven to squeeze productivity out of machines and operators. This logic of practice was inscribed to the industry "because the government [the dominant early contractor of the computing industry], fighting the protracted cold war with the Soviet Union, believed that it would need better and better computation facilities" (297). The arms race to improve computational efficiency, gravely important in light of the cold war, provided the computing industry with singular benchmarks and goals that were purely empirical, rewarding advancement in processing, storage, and retrieval.

The constant drive towards efficiency that characterized modern computing has many rewards: transistors are orders of magnitude cheaper than ones produced just years prior Terabyte disks that sit on desktops, and devices such as the iPhone and iPad that inspire child-like wonderment. If the industry were not oriented functionally around constant improvement, our lives would be very different. This brings me to the statement of the problem: I believe that the drive towards the bigger, better and faster has left us with devices that are out-of-sync with our work patterns. In essence, the social narrative that validates Freedom is partially a red herring, a diversion from the true problems of distraction in today's computing environments.

Over the past five or ten years, the devices we use for work have exploded in complexity. No longer a word processor or spreadsheet, our computers are now televisions, game machines, and—most importantly—portals to an always-on channel of social exchange. Yet because these changes have been realized in code as opposed to form, we think of the device as static. A computer is just a computer. I see our work devices increasingly failing the market, with disastrous consequences for productivity, progress, and self-worth.

The Social Web is part of the problem. Hulu and YouTube is part of the problem. Email is part of the problem. IM and Skype are part of the problem. Etsy is part of the problem. Twitter is part of the problem. But what, exactly, is this problem? Productivity in the digital age enforces a prerequisite of connectivity. We must be connected to research, consult, contact advisors, share work samples, promote ourselves, manage our personal brands, and respond to others at a moment's notice. I believe that productivity, under such conditions, is challenging or impossible. We simply cannot descend into the states of concentration necessary to complete long form tasks, with knowledge that endless social opportunity and obligation awaits. The Social Web calls us because the Social Web is made of those we care about, or want to care about, or wish we did not care about.

Freedom has been described as an antidote to the Social Web, a description I publicly contest. Problematizing the Social Web inherently problematizes social relations. If Freedom is the antidote for anything, it is the antidote for machines that have gone out of sync with basic human work practices. Why have computers not kept pace with the time, adapting to the challenges of work in an environment rife with constant social hum? When we consider

work and education in the digital age, it is critical to reflect on the fit between our devices and our tasks. Against logic, we may find that the best, newest devices are not a good fit.

Tasks in the Digital Age

To address the growing divergence between our devices and work practices, we have constructed and attempted to empiricize the concept of multi-tasking. The concept that individuals could work simultaneously on many tasks, aided by computational support systems, is an essentially modern idea. In it, we see the logic of computational efficiency assigned to the body, as if our biological systems were simply parts to be upgraded. Of course, multitasking has proven largely to be a myth. We are not better at tasks when we take on more. The work of Cliff Nass and colleagues (2009) shows us that multi-tasking, in fact, has decreasing marginal effectiveness as task complexity increases. Multi-tasking most fails those who most need it.

Flipping through the last ten years of proceedings from ACM (Association of Computing Machinery) "Human-Computer Interaction" conferences, we see a fantastic array of systems built to support multi-tasking, facilitate remote work, prostheticize our beings. In these technologies, we see the march towards progress, towards efficiency: bigger, better, faster. As we consider work products and processes in the digital age, we should turn a critical gaze to the set of values that creates this dominant logic. What can we learn from moving in the opposite direction, slowing down, limiting the tasks at hand, embracing the monotask?

The reader may have noticed the fundamental contradiction in my argument about Freedom. A technology that increases productivity, Freedom follows the dominant logic of the computing industry: technology should increase efficiency. The difference, I will argue, is that Freedom and Anti-Social are imbued with a different set of values, ones worth considering in the age of digital media. If the dominant value set of the computing industry is *bigger, better, faster,* Freedom appropriates the different (and slightly less catchy) value set: *smaller, better, slower.* By slowing down, and constraining our focus to a single or limited set of tasks, we can produce better work. By breaking and hacking our machines, by leaving the constant hum of the Social Web for a few hours, we can find clear minds and harness wonderful computational technologies as tools: tools that we control, not the other way around.

Only through extensive use have I realized that Freedom is about pushing back at the device itself, a device that has failed the work market in a drive toward progress. To come to terms with this uncomfortable lack of sync between our devices and work patterns, first, we must understand that we, humans, are not the problem. Second, we must reconsider our relationships to our devices and, with open minds, examine where our devices have failed us. Third and finally, we must change the ideology of the productivity industry, moving away from *bigger, better and faster* and towards *smaller, better, and slower.*

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Would You Like to Teach my Avatar?
Learning in Second Life

Patrick Lichty

In the video *Do You Want to Date My Avatar,* the cast of the online sitcom *The Guild*[1] playfully show the differences between physical and virtual lives by highlighting fantastic/idealized virtual lives. This bifurcation between the everyday real and fantastic virtual is intrinsic to teaching in virtual worlds. By discussing a pedagogy of virtual worlds, and in particular, Second Life, one has to consider several aspects of their specific qualities in order to create a discursive context for their use in the classroom. Second Life (occasionally referred to here as "SL") is a virtual online community in a 3D setting with open-ended sets of media delivery options and building tools. It is only one of a number of virtual worlds that are being used as teaching platforms, such as the open-source OpenSim[2] which is relatively similar. However, for this discussion they will be considered similar enough to be equivalent to SL. There has been a long history of online virtual spaces, such as MUDs (Multi-User Dungeons), and MOOs (Bartle), and including other spaces like AlphaWorld[3] and OnLive Traveler.[4] Furthermore, many other "virtual worlds," including multiplayer games such as *World of Warcraft*[5] are being used as educational platforms. However, I will stay with Second Life in order to retain a modicum of focus, and hope that the reader can remap the insights in this essay to their environment of choice. I would like to begin with the engagement of SL as tool for content delivery, then consider disso-

nances with student culture, and then muse on some of the strengths of SL as online spaces where work remains, or "persists" for future classes. From this I will also give an example of one particularly successful project we have used in the Department of Interactive Arts & Media at Columbia College Chicago's Media Theory curriculum.[6]

So, what is SL? Second Life is a community-based online 3D virtual world created by Linden Labs in 2003. It consists of a multi-user virtual environment (MUVE) where "residents" establish various communal, social, and cultural practices. These include the creation of educational, institutional, and commercial concerns, with "real world" sites like the National Portrait Gallery of Australia, Playboy Magazine, ZKM Karlsruhe (a center for electronic media in Germany) and IBM currently or previously being involved. Residents interact through avatars, or embodied virtual representations that congregate, engage in art and performance (as with the art groups Second Front[7] or Eva and Franco Mattes (Mattes *Synthetic Performances)*) create architecture, teach, and so on.

One can argue that the history of virtual spaces can come from immersive environments like Lascaux and Bacchic mystery rooms (Grau 26). The spatial/embodied version of the electronic variety could be linked to Heilig's *Sensorama* coin-operated virtual experiences (158) to Jaron Lanier's "goggle and glove" paradigm (167), as seen in the VR arcade game, Dactyl Nightmare.[8] In the later 90s, we would see the CAVE's 6-walled virtual reality space, as well as online virtual spaces like OnLive Traveller[9] and Superscape (CNET Staff) that are early cases of virtual architectural environments. What is important about spaces like Second Life is that work created in virtual worlds remains there unless deleted, where it can be edited/modified/ stored for the future. The ability to create modifiable "persistent" spaces and combine them with multiple streams of media delivery and real-time participant interaction create experiences that can represent accrued work and rich media delivery strategies.

In short, Second Life is an avatar-based, persistent multi-user virtual environment that allows users to create persistent content, share media and web content in common online spaces. Many institutions of higher learning are using this environment (Bowling Green State, Columbia College Chicago, and Ball State (SLurl)), and the uses have included virtual architecture, social investigations, collaborative design, virtual narrative and game design.

A compelling aspect of SL as teaching tool is its ability to deliver multiple media streams in different forms. In my essay, "Speaking the Multimedia Culture," (Lichty, 1998) I made the argument that media culture has created a culture in which the masses have begun to multitask the way people process simultaneous streams of media, as well as think and speak in terms of them. This "(defines) narrative strategies . . . applied to an emerging culture of media simultaneity [that creates] a more immediate, visceral experiential framework." At the time the presentation was delivered, the quote primarily referred to the Web, radio, and television, delivery of text, media, audio, and so on. But in virtual worlds, and especially in Second Life and OpenSim, these channels are literalized into a virtually embodied multimedia space. This is significant in that it represents an integration of the channels of delivery into one milieu, and this is further recursed in the Revision 2 version of the Second Life client's ability to use web content to be used as the texture of a basic geometric shape, in Second life, called a *primitive*. These abilities take the idea of the multiple channels of a digital age and folding it into virtual space as just another set of channels among many. Therefore, my approach to a theory of media concurrence and implementing it in SL is congruent with engaging pedagogy as a form of embodied theory.

In practice, my particular department feels that critical engagement with media production is essential to intentionality and proper formation of message. In our program's core curriculum, we have two mandatory freshman Media Theory classes, and elective/concentration courses in Virtual Worlds, Game Culture, and Digital Media Culture. This follows from a Heideggerian sense of intentionality rather than a purely technical/instrumentalized approach to teaching mediated communication. Having been introduced to the theoretical foundations and having inculcated them in critical thinking, the students are better prepared to have articulation of their own voices, although there is occasional youthful resistance.

There are challenges in student engagement in using Second Life as a pedagogical tool that are surprising given that the Millennial generation is one of social media and user-created content, like Deviantart.[10] The program I teach in at Columbia College Chicago is constituted by about two-thirds Game Design majors, and at times students in the department speak vociferously against the platform. This opposition may be only due to the propagation of attitudes of a few, but the issues relate to the open-endedness of the platform and the inconsistent formal quality of the user-created content. This is due

in part to student acculturation to results-based learning, popularized by 2000's techniques in test-based education. Second, although the student population is highly involved in user-created content, their expectations from an online service like SL are for highly crafted environments like in *World of Warcraft*. And their goal/results-based training is aimed at discrete quest-based tasks, which are discontinuous with the "sandbox" approach in SL.

How does one change the disconnection in expectations between genres (game vs. non-game virtual world) for the student? Teachers using virtual worlds need to discursively frame the function of the space in order to properly engage the student. Perhaps "selling" SL to a gaming population used to fast-paced platformers is a challenge, but a counter-challenge is to reply, "Well, if you think it is that terrible, let's see how much better YOU can do!" The call-to-arms to the student is a wonderful opportunity to engage in a positive critical position or to craft critique based on better solutions. In addition, I also offer the opportunities of virtual socialization social spaces: art luminaries, famous writers, well-known curators, and many others often spend time in SL. Once the student understands the import of the "social" of the social media aspect of SL, their attitude becomes much warmer.

Second Life is also useful as a teaching tool for qualities of content persistence in a social medium, as content created on our departmental island can remain as long as we (i.e. the administrators) want. There is also the consideration that our department pays Linden Labs for Second Life server space, and will soon do so with no educational discount, as this has been discontinued. The best work from exhibitions, class exercises and embedded media can remain as exemplars across semesters and class sections. Although administrators need to balance retention between legacy content and currently generated work. This is largely up to the instructor, but if you think about keeping a portfolio of best student work from a series of classes, this is no different. What may be different is that the virtual world might be a "commons" where multiple classes share the same space, creating a heterogeneous space over time and section that could be inspiring to the student.

Social responsibility is also an issue that is foregrounded when using SL in the classroom, even if the spaces in question are virtual. Much work in Second Life is collaborative in nature, so the class forms micro-communities and adopts collective responsibility for them. Of interest to this context is also my contact with students who participate in the "troll" or "lulz" subculture

(Schwartz 1) that engages in disruption of user experience as entertainment. This allows the framing of these cultural effects within the Media Theory curriculum as applied examples of online ethics and social ramifications through face-to-face interaction. This may have to do with the nature of the world itself, or perhaps with the tools and their interfaces. This brings me to changes that I would make to SL and virtual worlds. Changing SL as a tool would include radical revisions to its interface toolset for more intuitive interaction. This is not to say that a multi-user world that includes idiosyncratic 3D modeling tools, internet chat and character action controls is necessarily going to have simple interfaces, but it does create stratification my skill set. But in defense of my student body, one of the hallmarks of great environmental/user experience design for a game is a shallow learning curve for controls and navigation. Although Second Life is not a game as such, I do feel that Linden Labs' interface design is subpar when compared to other embodied media-like games.

Many of the plusses and minuses of teaching in the SL environment have been discussed earlier, but perhaps an apt case study might be to consider an experience of conducting a class visit in SL. This study is an amalgamation of visits to Christiane Paul's graduate seminar at the New School (Paul) and Susan Ryan's New Media undergraduate class at Louisiana State (Ryan). These situations share common elements, with slight variations, exhibiting a consistent set of experiences.

All of these class visits included trips to large scale installations in Second Life, like the National Portrait Gallery of Australia (NPGA SLurl & website) or the Odyssey Art Simulator (SLurl), both of which were contexts to discuss virtual art and performance. The methodology worked well in that I could engage with these classes from my office at Columbia College Chicago and connect with them in an embodied fashion in these networked spaces. A drawback was that non-experienced users had some degree of technical difficulty, or the network itself was not working properly. This delayed the start of the lecture for about 15 minutes. Once the technical bugs were worked out, the lecture progressed fairly well. However, the continual usage of avatar "gestures," or small audiovisual animations, were activated regularly by the attendees, giving rise to an unruly classroom, necessitating a call to order.

After getting the class into a coherent flow, the delivery of content is conversational, with the ability to deliver still and media content, creating an en-

joyable experience. Of course, if the lecture is in a public area, Second Life is famous for "trolling," or harassment by some users for entertainment purposes. Being ideologically in support of anarchistic social practices, I find it ironic that the 12-foot tall Hello Kitty avatar with the phallus gun and harassing comments is of any consequence. However, an academic class necessitates certain institutional expectations. The lecturer is then presented with a quandary: What to do? Does one shut down the lecture, react (which is the desired response and worst idea), ignore the troll, ban them from the region (if possible), or engage with similar tactics (i.e., setting the offender on fire and blasting them up to 15 km high) while explaining the phenomenon to the class? While ignoring is often the most appropriate measure, engaging tactically can be the most effective and satisfying, as it offers a chance to explain social practices and subcultures in online spaces and virtual worlds. What is clear from this study is that the effective educator in virtual worlds has to have technical competency with the tool, knowledge of social dynamics of the space, and understanding of local cultural specificities. If one is going to use Second Life as an educational space, one has to understand it as more than another classroom; it is an excursion into another world. This principle is explicated in our curriculum as an imaging exercise that introduces students to the environment as milieu.

One of the most successful applications of Second Life in the classroom is that of our "graphic novel" exercise. This occurs in the Media Theory track (Columbia Chicago Website) when we begin looking at serial narrative as applied to the construction of the "comic" as defined by Scott McCloud in his book, *Understanding Comics*. In it, he defines comics as being "Juxtaposed pictorial and other images in deliberate sequence" (McCloud). So, since our students are not assumed to be illustrators at the time they take the first Media Theory class, they are introduced to Second Life to find content in making a short story in the style of a graphic novel. The narrative framework for this project is variable, from documenting a day's experiences in SL, to creating a fictional tale, or using sentences cut from various stories and mixing them up (à la Burroughs and Gysin's "cut-up" method (Jones et al. 345-7)). The idea is to take snapshots from SL and combine them with the text snippets through a DIY comic program like *Comic Life* to illustrate the class's teachings of serialism, layout and visual direction.

Of these projects, my favorite is "Alcohol" by Josef Locastro, which mixes lexia cut from Douglas Adams' *Hitchhikers' Guide to the Galaxy* (Adams) and William Gibson's *Neuromancer* (Gibson). The scene is set in the SL region called *Insilico* (SLurl), which is a cyberpunk region modeled very much after Gibson's novels, or even Ridley Scott's vision put forth in the movie *Blade Runner* (Scott). The plot involves a breathless tryst inside a neon-bathed bar called the "Blue Ant" with short passages I can only recognize as being ones relating to Gibson's assassin anti-heroine, Molly Millions. However, its success derives from the glowing, lush images from *Insilico,* which are analogous to the visual style of graphic novels, along with Locastro's arrangement of word and image in the framework of the assignment. The ability to find a "native" to collaborate to create appropriate imagery, thematically and visually, along with the student's ability to stage these tableaux made this exercise particularly successful.

The use of Second Life as a pedagogical tool can be very rewarding, but also presents challenges. The tremendous possibilities offered by the environment are also confounded by the learning curve and the cultural challenges of the student body's perception of online environments as juxtaposed to gaming. The potentials for meeting extraordinary people, for the delivery of unique content and for collaborative experiences constitute just some of the opportunities SL provides. For example, frequent lectures by scholars and external speakers inside virtual worlds give the student the opportunity to see a much wider amount of content. The potential for multiple classes/constituencies gives opportunities for classes from different schools to interact. And lastly, although this is not the end of the possibilities, there are communities of ESL language learning groups in-world (its-teachers.com).

SL offers all of the above, but there is an experiential and technical curve in acclimating to SL in a classroom environment. An important point to understand is that it is not merely a tool for content delivery or communication, but an alternatively embodied environment with its own challenges. But for the educator who can understand the specific technical, social, and cultural issues in working in virtual worlds, the results can be highly effective.

[1] See ‹http://www.watchtheguild.com/›.

[2] See ‹http://opensimulator.org/›.

[3] See ‹http://www.activeworlds.com/worlds/alphaworld/›.

[4] See ‹http://www.digitalspace.com/avatars/traveler.html/›.

[5] See ‹http://us.battle.net/wow/en/›.

[6] See ‹http://iam.colum.edu/›.

[7] See ‹http://www.secondfront.org/›.

[8] See ‹http://www.arcadehistory.com/›.

[9] See ‹http://www.digitalspace.com/avatars/traveler.html/›.

[10] See ‹http://www.deviantart.com/›.

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Media Production with Arduino

Jonah Brucker-Cohen

I think of digital media as an artifact itself rather than merely a tool to "teach" to a student who then would use it to make an artifact. My philosophy with digital media is to assign projects that attempt to break or circumvent a system's everyday use and challenge that use into creating a novel interface or experience (Seely Brown). I also never focus on the tools themselves, but rather on methods of understanding software and hardware. Since software and hardware change constantly, there is no longer any use in teaching a specific type of interface. Rather, it's important to teach how to understand interfaces in general and how to navigate through these conventional design traits. The problem of obsolescence becomes less of an issue since we can understand the conventions used in software and interfaces to some degree. The tools may be outdated, but the methods for working with them is something that stays constant throughout their evolution (Norman 20). This is the same for understanding advancements in operating systems as well, since the conventions remain the same throughout their updates with new features added on every release.

One of the main differences between digital media and institutional learning is that digital media tools and methodologies are constantly changing while traditional institutions are often stagnant and exude more permanence than

change. The lessons learned from the advent of digital media are that nothing is static anymore and that in order to stay on the cutting edge, one must evolve and innovate constantly. Digital media is a mechanism for the evolution of thought processes as well as how we interact with systems and people on a global scale. I try to instill in my students that they should never take anything for granted. This is especially relevant when using software or computers and assuming that the way something works is the only way that it should or could work. This way students take a critical viewpoint (Lovink) of digital media and the tools used to create something with it, question it, and decide whether there might be a better way than what already exists. I am always more interested in questioning the media than embracing it since more interesting results can come from the former approach when producing media art projects.

When teaching, I try to get the students to immerse themselves in digital media environments and social networks to the point where they can experience them from the same perspective of someone who has used them from the start. Only from this perspective can they truly understand the medium in which they are working and begin to see how subverting these systems will yield interesting results. I think it is important to teach the values of social software, but also to outline the critical aspects of this changing medium as well. The main problem with social software is that it is a mediated medium with specific rules and regulations that are not always as obvious to users as one might think. Rather than discover these limitations, users are content to divulge their personal information to these corporations in return for receiving free storage space online and a medium in which they can interact with their friends, families, and peers. They are not always conscious of the freedoms they are relinquishing by signing up to these social networking sites and these types of miscues can often come back to haunt them in the future.

When learning the tools of networks and computer systems, it is important to think of them as a system rather than a specified set of interfaces. One example of software used to teach students how to program electronics is the Arduino board, designed and built in Italy, and its accompanying programming environment. Created initially to be similar and a hardware companion to the Processing software that teaches programming to artists and designers, Arduino software provides an interface to communicate and program the hardware board of the same name. Prior to Arduino, the tools for programming micro-controllers were only available on the Windows platform. The chips in question for artists were the PIC chip from Microchip Technology, the Basic Stamp by Parallax Inc., and the BasicX by NetMedia. Despite the ease of use of these technologies for someone with very basic electronics knowledge and skill, the act of programming these chips was often cumbersome and glitchy since in order to see your program run, you needed to mount them on an external breadboard and hook up auxiliary power and other hardware components. It often took someone who was very skilled at electronics to both teach these controllers as well as get them to work in the ways in which they were intended.

Arduino on the other hand was designed from the start for artists and those who were just learning electronics to empower them and get them started on projects without any technical training needed beforehand. Since the programming language, based on the Processing language which was based on Java, is relatively easy to understand, even a novice could get a circuit working in a limited time frame. Also, the board was powered through a USB connection, which lessened the amount of external hardware needed to get a project running. The board itself costs under US $40, which also made the price barrier to entry lower for a novice who had never used electronics before so that they could easily start working with hardware without a huge financial deficit. Like Processing, Arduino is extensible and supports various software libraries that make the hardware platform reach even further than any of the previously mentioned interfaces, which also creates new possibilities for users. Furthermore, the board is open-source, meaning artists and designers can rebuild the hardware to their own design as long as they do not call it “Arduino” (the name is trademarked for quality control). Because of the open-source design, many artists have customized the Arduino design into multiple incarnations in order to create standalone projects that work as aesthetically pleasing objects (Djajadiningrat, Gaver and Fres).

I became interested in Arduino as early as 2004 when I was using it to upgrade all of my older projects that used the older boards in order to save on power supplies and excess hardware. The board was very inexpensive, which meant I could use it to make multiple copies of a project if I were to show it simultaneously in different locations. I advise my students and people who attend a hardware-based workshop that I co-run called Scrapyard Challenge to use the boards. Often they are new to electronics and hardware and want to get started on a project but have no specific skills in the area. Arduino provides an easy entry point into the world of electronics and hardware by catering

its approach towards simplicity, understandable language and programming skills, and ease of use. For instance, when programming Basic Stamp and BasicX boards, I would often get stuck "programming" the chip, since the serial data connection from the computer to the board was often homemade and never connected right every time. Prior to USB connection, it required a 9 pin serial port cable from a PC to the chip and this connection was built by hand in order to make sure the chip was receiving the right signals from the computer. There were countless times when my boards would not program correctly and, before I got to building the project, I could not even get my code to the chip. Arduino's solid connection to the computer with its built in USB port and indicator LEDs solved this problem and made it possible to enjoy the act of creating with hardware first above, getting it to work which rarely happens anymore.

As a teaching and learning tool, Arduino is a breath of fresh air for designers and artists who do not want to acquire the skills of an engineer in order to get an often simple project up and running within a limited time constraint. Its ease of use and rapidly expanding developer community has aided an entire generation of programmers, designers, practitioners, and artists who never thought they would be designing hardware systems. With Arduino, they can program and create new interfaces quickly, cheaply, and easily without any prior knowledge needed about the world of electronics or electronic components.

Also situated within the software community of Processing and Arduino is Fritzing, a software and hardware system that employs a similar approach to its two cousins. Rather than just focus on programming a board or programming graphics, Fritzing allows users to create and design their own printed circuit boards (PCBs) which they might use to create a standalone version of a project or just a more solid version of their project on a custom designed board. Along with Arduino, Fritzing is a powerful new way to think about designing electronics and hardware since it allows the users and artists to empower themselves by designing hardware that was once only in reach of trained electrical engineers (Penny 35).

Over the course of the past few years, I have used Arduino extensively in my work because of its inexpensive cost, flexibility and ease of use, and the large support community for the tool online. As a motivator, Arduino is a project that originated in an art school in Italy and has since been used in both pedagogical environments as well as in commercial products and large scale hardware systems. In effect, the tools of artists are making their way into the "real" world and changing the way that people think about and use electronics and electrical systems. The ease with which sensors and actuators can be attached to the hardware platform enable it to be a catalyst for both large and small scale interactive projects and an inspiration for novice and trained artists and scientists to think of new ways to implement, teach, and discover new possibilities with the system. Overall, I would recommend the system to anyone who has either never used electronics or anyone who is an expert on anything related to electronics, all of whom would be equally able to create something imaginative on the platform. The ease of use and low barrier to entry makes it both an accessible and creative tool in the development of interactive projects and systems.

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A Path towards Global Reach
The Pool

Craig Dietrich with Jon Ippolito

In 2007, University of Maine undergraduate Ryan Schaller blogged answers to an in-class assignment that asked him to agree or disagree with Henry Jenkins' "Eight Traits of the New Media Landscape." The traits focus on cultural practices brought by new media rather than the particulars of emerging technologies. The latter, as Jenkins[1] describes, are more commonly used to describe new media, but understandings that consider cultural practices can better traverse platforms and communities. Schaller mostly disagreed with Jenkins' list, citing problems with the use of the trait "generational," among others. The next day, Jenkins responded:

> I wouldn't say that a use needs to be generational in order to be "new." Rather, my goal is to bridge across this participation gap so that we can use new media in order to facilitate better communications between young and old. I hope this clarifies where I am coming from. (Jenkins, "Comment")

The next time Schaller discusses new media definitions in class or expands his argument into a school project, he'll have material straight from the head of Comparative Media Studies at MIT.[2] His example is one of many where social media have broken down classroom walls to foster exciting engagement with student work. The anecdote comes by way of his professor at the

time, Jon Ippolito, who happens to be one of the developers of the software I'll be examining in the latter half of this text. I've interwoven Ippolito's perspective in my remarks below, because it contrasts with the message many contemporary teachers have given their students about the proper role of technology in the classroom.

In the past, students created work for the consumption of their teacher. Now, with Social Web tools breaking down traditional boundaries between student work and the outside world, teachers can serve less as endpoints and more as mediators, suggesting routes to a global audience and back again. In-class projects frequently end up on blogs, videos end up on Internet Archive, students distribute links via social media sites, and some teachers are encouraging their students to find new opportunities for feedback on YouTube, Slashdot, or even Wikipedia.

Students using social media may find their projects propagated globally, but it's difficult to find similarly networked environments to develop work inside the classroom. Whether for a book report or honors thesis, students are routinely expected to develop project concepts and arguments that are informed by more than their own limited frame of reference. Yet many development tools assume that the path to creation involves working individually or with only a small set of class collaborators, not a campus community.

One such tool is Blackboard, a commonly used online learning environment in American academia. Inside the web-based software, students can download readings, upload homework, and post to discussion threads, and teachers create assignment calendars, manage grades, and track participation. Though Blackboard's features expand participation from the classroom to an online environment, the arena it creates is a far cry from the open spaces students are authoring for. HASTAC co-founder Catherine Davidson writes about Blackboard:

> Talk about sending the message that technology is drudgery, that learning should be sanitary and joyless and hierarchical and proprietary, that surveillance is more important than collaboration. . . . Every time I open it, I think to myself "This is software for the panopticon." (Davidson)

Blackboard's managerial approach to educational software goes beyond additional "features" like SafeAssign, a product whose primary goals are to "prevent plagiarism" and "protect the originality of work" (SafeAssign). The very next section on *Blackboard.com* after "Teaching & Learning" is "Commerce & Security," where we learn Blackboard can help administrators:

> View live or recorded video from virtually anywhere using an unlimited number of cameras. . . . With sophisticated image zooming, frame-by-frame playback and a customizable screen layout, Blackboard video surveillance is an easy-to-use solution that helps optimize campus security management.

In fact, Blackboard's authoritarian ethic is evident in its own history of threatening open-source software alternatives with questionable patent claims.[3] As Ippolito puts it:

> When we use closed, monopolistic software in class, our subliminal message is that the world is closed and monopolistic. Blackboard belongs in the same trash can as TurnItIn, PeopleSoft, and all the other top-down tools so easily marketed to gullible university administrators.

To find software that encourages open collaboration rather than closed monopolies, teachers can look to the software industry itself, where version control distributes authorship and responsibility. In version control systems, software developers can swap code back-and-forth with other developers. As one developer makes an update, the others see the change, and are free to add to or update the code. Unfortunately, even these systems can fall prey to classroom policies that discourage collaboration. The University of Washington, despite its reputation for historic contributions to open-source computing, published this regrettable bullet point in its "Student Academic Responsibility" document:

> Illegal collaboration often occurs on homework in computer programming courses. A common case is when two students outline a program in detail together, and then type it into the computer separately, perhaps making minor modifications or corrections as they type. To a grader's trained eye, the structure of the programs is identical and the students are guilty of cheating because they haven't turned in separate, original work.

That the term "illegal collaboration" was coined is bad enough, but worse is the message being sent to students in the face of how code is created in the field. Many industry-led software paradigms, including Object Orientation, are built on the premise that parts of software shouldn't know how other

parts work—or where the code comes from—as long as they get the job done and respect commercial licenses. In response to my suggestion of adopting version control in the classroom, Ippolito pointed out a moral dilemma it raises for teachers:

> Because each user gets credit for the changes they have made, version control offers a paradigm for student collaboration that weaves attribution into the collaborative process. Of course, professors impatient to assign individual grades may not want to untangle the "family tree" of credit for an open-source project, even if studies prove that coding together is more effective (Cockburn and Williams). So that leaves professors with a choice: pick a software environment that makes their life easier (via grade management), or one that teaches their students essential skills (via pair programming).

This choice is not limited to computer scientists: with version control able to track contributions to a variety of text and media formats,[4] educators across disciplines have an opportunity to shed panoptic software like Blackboard for systems that reinforce collaborative working environments.

At the University of Maine's New Media Department,[5] one finds students working at all stages of project development. Culminating in a senior year capstone project, the curriculum includes classes such as Project Design Lab and Concepts & Process of Time Arts & Design that emphasize different aspects of creative and scholarly process. With multiple creative angles throughout the department, their Still Water lab[6] produced a tool, The Pool, to meet the needs of both students, to help them more easily expand ideas in a shared environment, and teachers, who could use the tool to indicate student growth. The team noticed that students were placing a great deal of effort into conceptualization and planning before a project draft materialized. The Pool is therefore based largely on version control principles but with a key upgrade: tracking begins at the moment of idea generation, with checkpoints before and after material production.

I have had opportunities to work with The Pool's principle architects,[7] Jon Ippolito and John Bell, including a year as a visiting professor in the New Media Department in 2008. When I first arrived at the University of Maine, I became familiar with The Pool through interactions with students, who showed me projects they had developed in their classes that had been entered into the system. One of The Pool's unique features I noticed right away is the abundance of projects displayed as titles floating around the browser, constituting the software's primary interface. The floating texts do not represent a single class (though through tags the interface can be refined), or a university (in fact, many contributors are not students, but rather a network of people who agree with the site's sharing protocols).

The Pool's "Diving In" section outlines fair use guidelines and tells users making a project derived from another to: "1) credit the original author and 2) re-register their re-use back in The Pool by adding a relationship to the new project." However, though the protocols can help protect student work from inappropriate reuse, like the protocols for many public tools they cannot prevent work contributed for a class later misrepresenting a student's abilities. As Virginia Kuhn describes:

> Part of being deeply digital is discriminating about how, when and for which purpose you make information public. As we've seen with sites such as Facebook, students can share information that they are later sorry to have shared when it comes back to haunt them. They may likewise not want less than polished work persisting online, without context, if they for example later apply to graduate school. (Kuhn)

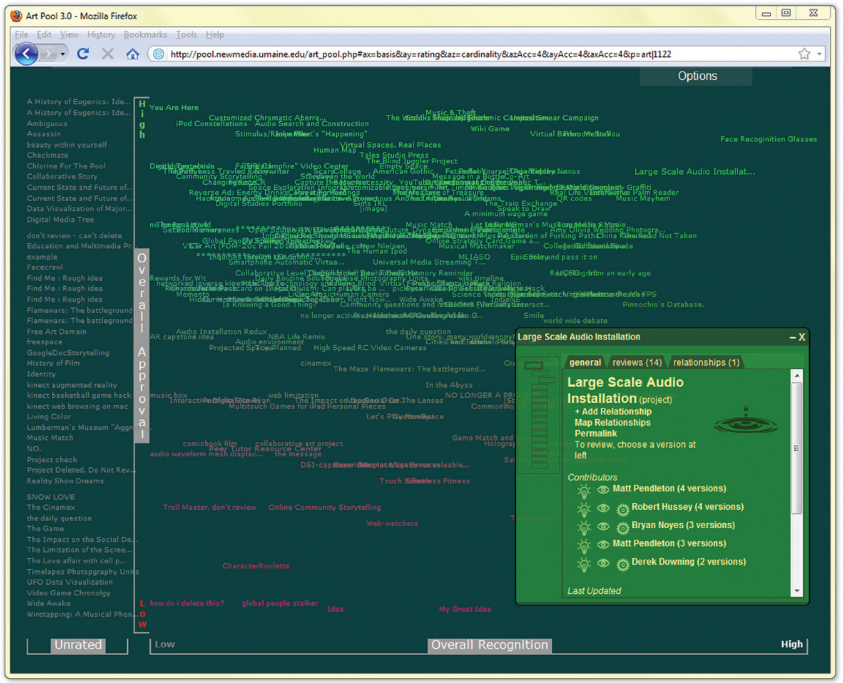
With this concern in mind, The Pool could benefit from a feature that lets users restrict projects to specific institutions. In the meantime, its structure provides students with the ability to opt in or out at different stages of project development, and its granular recordkeeping provides a wrapper for individual contributions.

Each Pool project is entered from its inception as an intent: a short or long description of what the contributor will set out to do. As it turns out, a project can and many times does stop at this stage. Reviewers of the intent might point out a weakness that inspires the student to move in a new direction, or mention that an intent is too similar to other existing projects already produced. But if comfortable proceeding, contributors next add one or more approaches that describe a technical or design framework to actualize the intent. Like intents, approaches are reviewed by other members of The Pool.

The Pool's stages—intent, approach, release—can be variously incorporated into a semester depending on teaching style. Ippolito's classes often dedicate their first month to project intents. During this time students record and debate concepts in The Pool, after which the software's ranking system promotes some intents to the top over others. Next, the top intents are distributed

to newly created teams, working together to develop approaches. The top rated approaches are then refined into a couple of releases that are worked on for the remainder of the semester. Ippolito's use of The Pool encourages collaboration, with group projects defined by students' collective interests. Alternatively, in my classes, students enter multiple intents to determine individual directions. Intents are refined by Pool feedback into later, individual stages, which are then further refined. Though resulting projects are worked on individually, students receive valuable input from inception that influences their project's development.

One afternoon while a student and I were browsing her Pool entries, we viewed the history of a project and found ourselves at someone else's intent. She explained that The Pool allows a contributor to layer approaches or even releases onto others' intents, and anyone was free to do the same to her contributions. When viewing the panel for the entire project, all contributors are referenced with titles such as "conceptual," perceptual," or "technical," referencing an aspect of development an individual contributed. As I discovered, not only could students log projects they created themselves, but they could



The Pool's "art pool" home screen displaying project titles on the grid and an open project window.

build on others' contributions, if they were interested, by adding an approach to someone else's intent or a release to an existing approach, for example.

Once contributors make it this far, the release stage of The Pool can be confusing. Other tools that manage production often act as a repository, such as Blackboard's area for uploading homework documents or GitHub, which also stores physical project material. Class blogs perform a similar task, centralizing student contributions into the collective template. Like these tools, The Pool encourages multiple revisions of the same work, but it has no such upload feature; work must exist elsewhere and be referenced via a URL. In my experience, many resort to simply ignoring the release stage—indeed, only 9% of contributions are releases.[8] It seems that once a URL is created and a project ready for release, contributors turn to other tools for distribution or simply move on to the next project. With this is mind, I wonder if The Pool would benefit from adding more stages between intent and release in the middle ground presently occupied by "approach." For example, the Pool could add specifics such as "connect" (find collaborators) and "research" (find past and present discourse), and these might support its goal of connecting potential collaborators.

Of course, other examples of educational software allow more than one author for a given work (even if they don't actively encourage it). When the lines between collaborators blur, however, grading criteria can fall back on principles of single-authorship to define collaborative roles. But as John Bell describes, open project development can elaborate on the roles of each contributor:

> The development process of a work is often opaque to the outside world, especially after it is complete. The Pool tracks that history and allows others to see the early, rough stages of a work, and how it has changed between initial conception and final execution. This is useful not only for those who want to learn by example, but also for anybody who wants insight into what is really the core of the final work. (Bell)

Essential to sorting out student efforts, student work distribution is easily apparent in The Pool. Rather than dissecting specific lines of code or relying on the weight of a final product, contributions are more clear in the descriptions of intents, approaches, and releases. Perhaps more importantly, grading matrices can be crafted around students' movement through a project by, for example, viewing how subsequent contributions adapted to reviews or additions from the Pool community.

The Pool community is itself a set of overlapping ecosystems. Students in the classes I teach at the University of Southern California can network with students and faculty at other Pool partner schools, such as the University of Maine and University of California, Santa Cruz. No doubt each school has its own ethos, and the conversations in The Pool reflect that. For example, both California and Maine had recent statewide referenda that overturned a progressive same-sex marriage law. In The Pool, students from across the country engaged in discussions surrounding the issue, which were stimulated by and documented as feedback for student projects created in reaction to these geographically separate but politically connected events. This inter-university conversation helped broaden students' awareness beyond their local sandboxes, which in turn brought a cross-coast perspective to ensuing face-to-face discussions in classrooms in Maine and California.

Another layer that drives The Pool's pedagogical use is its rating system. Members comment by adding their reviews as text, but are also prompted to rate project components (concept, perception, technical) numerically. Ratings are of course a big part of the classroom, comprised of both the teacher's grading and students' teacher/course evaluations, which are completed at the end of term. While traditionally evaluation is reserved for the end of a project or unit, The Pool integrates this type of evaluation from the very beginning of a work's lifespan. As Ippolito describes the system:

> Students and faculty alike contribute and rate each other's projects. Each contribution sinks or swims on its own merit. In a manner analogous to Slashdot karma, the credibility of Pool users rises or falls based on the reviews their contributions have achieved, and that credibility in turn weights their reviews of other projects more weakly or strongly. So if the Pool community thinks you're an amazing coder but a crappy designer, your reviews of the technical aspects of other projects will count more than your reviews of their perceptual aspects. The results of all this rating is a graphed interface in which the projects deemed best by the community float to the top. (Ippolito)

My first reaction was to give all students a 10 on their intents. Browsing through the reviews, however, I noticed that others who had started reviewing their colleagues were not shy to rank intents low if they thought aspects were missing or undeveloped. Other intents got higher scores. In some, teachers would get out-voted by the majority opinion.

A classroom environment where students can review their peers, build project foundations with each other, and distribute their work to Internet-based audiences has the potential to turn the tables of authority on the instructor. Blackboard is a panopticon: a top-down system that channels all views into an authoritative watchtower. The Pool, by contrast, is a heteroglossia: a place where multiple voices emerge. It is unclear whether bottom-up systems like The Pool will ever outnumber managerial software on college campuses, but there is evidence that exposure to the former makes students more likely to collaborate with each other in the long-term.[9] And that should be a good incentive for anyone who believes that educational software should be designed less for management and more for learning.

[1] Jenkins was co-director of MIT's Comparative Media Studies when Schaller's blog post was written in 2007. He is now the Provost's Professor of Communication, Journalism, and Cinematic Arts at USC.

[2] As Ippolito points out, the recent Faculty Survey of Student Engagement found that most professors prefer technologies that help class administration over those that empower student expression and feedback (see ‹http://www.nmdnet.org/2010/08/28/report-us-teachers-use-tech-to-manage-not-educate-students/›). Nevertheless, educational software companies still want professors to *think* they are focusing on education, and therefore have invented new acronyms to suggest that their software is more than managerial. Blackboard now refers to itself not as a Learning Management System (LMS) but a Virtual Learning Environment (VLE). To judge from critiques such as Davidson's, however, the distinction would seem to be lost on Blackboard's core user base.

[3] See ‹http://www.boycottblackboard.org›.

[4] Version control software such as *Subversion* can store any text file in addition to computer code, and also files such as images or video. See ‹http://subversion.wandisco.com/component/content/article/1/32.html›.

[5] See ‹http://newmedia.umaine.edu›.

[6] See ‹http://still-water.net›.

[7] The Pool is maintained by John Bell and Jon Ippolito with help from Joline Blais, Margaretha Haughwout, Matt James, Jerome Knope, Justin Russell, Mike Scott, Wendy Seltzer, and Owen Smith.

[8] See ‹http://pool.newmedia.umaine.edu/pool_stats.php›.

[9] Margaretha Haughwout found evidence that students who used The Pool for a significant amount of time were more willing to allow others to use their work in new ways (Haughwout).

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Ethnographic Research and Digital Media

Laura Forlano

In the context of teaching *about* digital media—in graduate and undergraduate courses such as New Media and Global Affairs, Technology and the City, Innovation and Design and Everyday Experience[1] at The New School—I have also been able to teach *through* digital media, employing listservs and blogs, requiring digital photos, videos and presentations and encouraging students to use online tools for data analysis. Currently, I teach in the Design and Management program in the School of Design Strategies at Parsons and in the Media Studies program in the School of General Studies at The New School. While the majority of my teaching since 2007 has been in the classroom, supported by digital media, some of my teaching has been in online settings using platforms such as Blackboard and Wiggio and even the 3D virtual world Second Life. In this essay, I will discuss the role of digital media in conducting, analyzing and documenting ethnographic research, which is a method that I teach in many of my courses.

By integrating the use of digital media into courses about design, technology and innovation, it is possible to bring to life the opportunities and constraints introduced by these tools. Specifically, design students are expected to understand the utility, significance and affordances (Gibson; Heskett; Norman) of designed objects, and graduate students in media studies are steeped in

theories about the social construction of technology (Bijker, Hughes and Pinch). Yet, teaching students *about* digital media is not sufficient to train them as critical practitioners rather than merely "users" of technology. It is only with in-depth and personal investigations and experiences with digital media that students develop their own technological point of view. Thus, repeated exposure to the ways in which digital media can expand learning as well as examples of its limitations are useful in teaching students to be more engaged in debates about these tools both inside as well as outside of the classroom.

In my graduate-level classes, I set up listservs via Google Groups in order to provide a forum for discussion throughout the week. While students are encouraged to post at least one article per week on the subject of the week's discussion, many students post more articles and responses and continue active discussions throughout the semester. The listserv is also an important site for course announcements, readings and links to online materials. It acts as a venue for building a community around the course. For example, I have had many students urge me to maintain the listserv beyond the end of the course since they viewed it as a valuable forum for ideas and opportunities. The integration of the listserv allows for a blended learning approach, which combines both face-to-face and mediated environments. Similarly, for my online students I seek opportunities where they might be able to meet in a face-to-face setting in addition to offering to hold office hours by phone and in person. In Fall 2009, a number of my online students attended the "Toward the Sentient City"[2] exhibition at *The Architectural League of New York,*[3] where one of my projects, Breakout! Escape from the Office,[4] was featured. Meeting online students face-to-face is important for the development of more meaningful connections with students, in addition to providing a face to go with the name.

On several occasions, when learning about telecommuting and sustainability in Fall 2007, I attempted to use Second Life with some difficulty. In this case, students would come to class with their laptops, create an avatar and attempt to navigate to the same "island" within the virtual environment. Undergraduate students reacted to this exercise with hesitation, mainly because they found the virtual environment to be "creepy." Despite having grown up with a wide range of digital media, Second Life felt like a very unsafe space to the students (the majority of whom were female) and they were unable to understand the commercial application of such platforms for supporting distributed collaborative work. Furthermore, bandwidth limitations and processing speed restrictions caused the program to crash quite often, which was unproductive and defeated the purpose of the in-class exercise.

When teaching with digital media, it is important to understand ethical dimensions such as the technological and individual realities of the students, which may vary from person to person. For example, while many students at private educational institutions such as Parsons arrive with powerful laptops of the latest variety along with a range of other digital devices such as cameras, phones, video cameras and, perhaps, even iPads, teachers need to be aware that not all students have easy access to these tools due to their individual financial situations. Thus, it is important to consider both high-tech as well as low-tech ways of completing successful assignments. Furthermore, while some students have a high level of digital literacy and experience with sophisticated ways of using digital tools, others are less able to create such impressive work digitally, and this should not be held against them when it comes to evaluating their ideas and grading their work. By allowing for some flexibility, we can enable students to choose the best ways to complete their assignments.

Finally, while there is a heavy emphasis on teamwork and collaboration that can be supported with digital media, especially in design curriculums, it is important to maintain the balance between individual contributions and group work. Students often have difficulty finding a common time to meet in-person for projects due to conflicting schedules, which are weighed down by multiple internships and a heavy course load. In this way, digital media such as Skype, e-mail, Google Docs may be helpful in coordinating group activities. In fact, a student assessment of the ways in which digital media were used in collaboration, featured as a built-in part of assignments, would be helpful in raising student awareness about the inherent opportunities and constraints posed by these tools. However, it is important to keep in mind that while an emphasis on collaboration is still important, students want to develop their own contributions, ideas and projects. Sometimes an overly strong focus on collaboration through digital media may hinder a student's ability to develop their own thoughts, arguments, data and sense of their own intellect, ownership and responsibility for their work.

In the context of teaching ethnographic research, I have employed a variety of digital tools such as digital cameras in order to document fieldwork through photo and video. Ethnographic research has a long history of drawing on

images and film in order to document cultural practices around the world (Plowman). In my courses, students observe the relationships between people, technologies and the built environment (Stilgoe) in urban settings. Taking field notes, I have experimented with the technique of using Twitter to document observations; there are also several iPhone applications for this purpose. While it has become easier and easier to gather digital photos and video, it is still relatively difficult to publish these materials as many of the top peer-reviewed social science journals do not accept them. In order to make use of photos in presentations, it is important to have ways of organizing, storing and sharing them. While it is possible to organize photos using iPhoto, digital media such as Flickr, yousendit and drop.io are helpful for sharing them with the public or with a specific group.

Yet, even with comprehensive documentation of the physical world, it is not enough to limit one's study to data that can be observed with the naked eye. As a result, it is necessary to employ additional digital tools in order to gather the kinds of data that cannot be readily observed. These include online traces of digital links as well as electromagnetic frequencies that exist in specific locals. Virtual ethnography (Leonard and Rayport), network ethnography (Leonard and Rayport; Howard) and trace ethnography (Geiger) are methods that enable new kinds of data to be studied. For example, GovCom's[5] IssueCrawler[6] tool allows students to visualize the network of a particular issue or topic by analyzing the links between various websites. For example, a student interested in sustainability could generate a list of the top sites likely to be important in the field of sustainability and upload them to the IssueCrawler. By analyzing the in-links and out-links from the original sites, the IssueCrawler will generate a visual representation of the topic including the hubs, connectors and outliers. In addition, spectrum analysis is an interesting way to generate a different way of understanding the space in which ethnographic fieldwork is being conducted. By using a spectrum analyzer, a relatively inexpensive device that plugs into a computer's USB port, it is possible to see the activity on surrounding Wi-Fi networks as well as to see whether they are encrypted or open. Spectrum analysis may be used to understand human patterns that are occurring in the space, which otherwise would go unnoticed or be misunderstood.

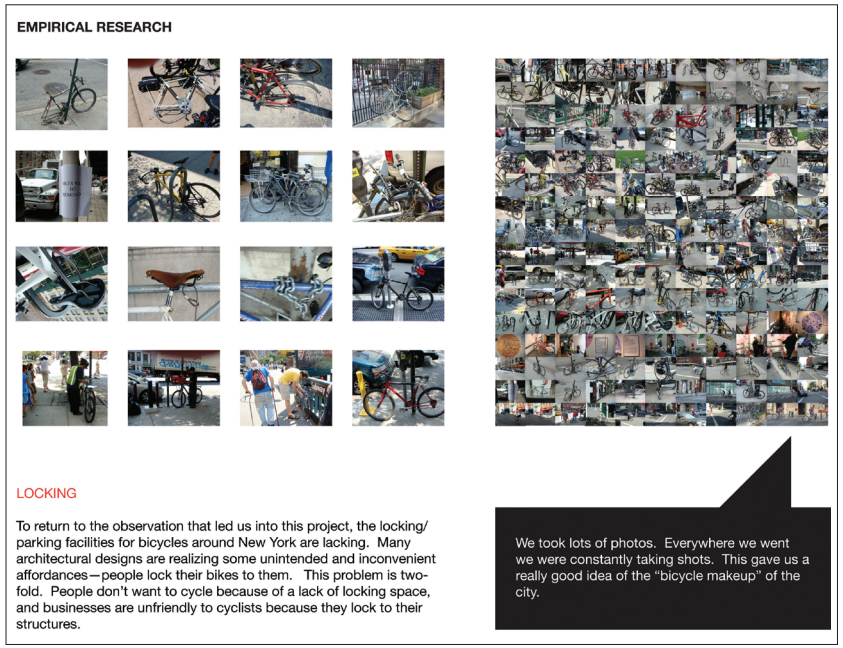
Finally, when presenting ethnographic research, it is important to use storytelling to combine field notes, images, video and other artifacts. Most students use PowerPoint or Keynote to present their findings; however, recently, several other tools such as Prezi[7] which allows for a more dynamic and visual rearranging of pathways through text and images, have caught the attention of teachers and students alike. PowerPoint has been berated for its aesthetic failings (Tufte) and even blamed for bad decisions and disasters such as the Iraq war and Columbia space shuttle accident. Yet, at the same time, it has been used effectively for the purpose of communicating, demonstrating and selling ideas in part due to the ways in which digital images and videos can be integrated into the performance of the presentation (Stark and Paravel). Other compelling formats for the presentation of ethnographic findings include interactive pdfs using Adobe Photoshop, photo slideshows, and short three-minute videos.

In this section, I will discuss the pros and cons of teaching, learning and conducting ethnographic research using digital media such as digital cameras and presenting ethnographic data using digital presentation tools such as PowerPoint, Keynote, Adobe Photoshop, photo slideshows and videos as well as analytic tools such as IssueCrawler and spectrum analyzers. First, the incorporation of digital media into the process of ethnographic observation can introduce new challenges and distractions while at the same time greatly increasing the amount of data that can be collected. For example, students may be distracted by learning to use new functions on their mobile phones to record photos and videos as well as the urge to talk to their friends, send text messages, check their e-mail and browse the Internet instead of focusing on the observation. While some students claim that they are unable to find anything of interest to observe and document, others return with impressive new insights about the world. The pervasive nature of digital media and the Internet as it expands throughout our physical environments can make it difficult for students to unplug and observe the world around them for the purposes of ethnographic fieldwork.

At the same time, digital media offer new ways of gathering, analyzing and presenting knowledge gained from ethnographic observations. In terms of presenting ethnographic data, students are often slaves to the presentation formats that are prescribed by tools such as PowerPoint, which suggest that presentations should follow specific order, layouts and storyboards. While flexible and adaptable to some degree, students feel pressured to use PowerPoint as it is *supposed* to be used. Perhaps they have seen their colleagues, faculty or managers give presentations that follow these preformed ways of presenting. When it comes to presenting ethnographic research, however,

the key factor in communicating knowledge gleaned from observation is the ability to be a good storyteller, often by translating the element of surprise a keen observer might experience in the field. Surprise is important because it typically indicates that the researcher has captured something unexpected or counterintuitive about human behavior. However, by overly relying on slides to organize and tell the story, students risk giving away too much detail, and, possibly, in the wrong order and thereby devaluing the gems and insights that they have discovered during their fieldwork.

For example, students assume that PowerPoint presentations must begin with a title slide, a background slide and perhaps a slide with a title and an image. Yet, some of the most effective presentations of ethnographic research that I have seen relied merely on a rolling slideshow of images without any text, or minimal text indicating the time, place and location that the images were taken. This leaves the storytelling in the hands of the presenter and insures they do not get bogged down with linear sequences of text on slides. Scanned images of field notes can also be valuable in communicating the authenticity of the research process.



Brendon Duvall and Anders Thøgersen, "Bicycling in NYC," Summer Intensive Studies: Introduction to Design and Management, Summer 2007.

More recently, I have assigned students to work in three-minute videos despite the fact that I do not teach courses about media production. While students have been quite resistant to this format, fearing that they do not have the skills to work in video, they have created poignant and funny clips, which have further enhanced their storytelling abilities. While students sometimes struggle with learning new formats and handling large quantities of data such as images and video, digital media have much to offer with respect to bringing ethnographic observations to life in the classroom.

In several of my undergraduate courses, including "Design and Everyday Experience" and "Introduction to Design and Management" (as well as the Summer Intensive Studies version of this course), I assign ethnographic observations that range from two to eight hours in length. Generating observational data is important for students because it is a way to underscore the value of each student's unique point of view and knowledge about the world. After all, with each observation, they are creating new learning about the world that cannot be found merely by reading books or trusting the opinions of teachers, journalists and scholars. As such, this assignment helps students to develop a sense of ownership over their own findings and knowledge that cannot be recreated or taken away from them. In these assignments, digital media are used to document, analyze and present ethnographic findings.

In one particular assignment, students were asked to stand on a corner taking field notes, photos and/or video in order to observe patterns such as temporal and spatial variations, global and local activities, individual and community activities, private and public activities including privacy and surveillance, socio-economic factors and demographics around topics such as consumption patterns, media and technology use, architecture and the built environment and social norms, regulations and policies. Over the years, I have learned to give specific guidelines for the type of field notes and the number of photos and artifacts that students are required to collect during the observation. For example, during a two-hour observation, students should expect to take five pages of detailed notes (indicating the date, time and location along with descriptions of their observations), 150-200 photos and/or short video clips and collect one material artifact.

Despite considerable complaints from students about the in-depth nature of the assignment, in particular from those that had been assigned the eight-hour observations, those that persevered generated impressive results when

it came to presenting their work. For example, one team from the summer intensive course spent a week conducting observations about bicycle culture in New York by attending meetings of fixed gear bicyclists and visiting and observing traffic in bike lanes in Manhattan and Brooklyn. The team displayed their findings in a series of slides using Adobe Photoshop rather than Keynote or PowerPoint; however, while aesthetically more sophisticated, the functionality for presentation purposes was similar in terms of a linear series of text, images, diagrams (including an IssueCrawler analysis of bicycle culture and sustainability) and sketches. One of the most effective and interesting strategies that this team used was to display a large quantity of photos from their ethnographic fieldwork; on the left hand side of the slide, a close up of 16 images, and, on the right hand side, thumbnails of over 150 photos. This was a compelling way to present the data because they emphasized the extensive nature of their documentation in a single slide.

Another student used video to illustrate the umbrella patterns that he observed from a window above the 5th Avenue and 14th Street intersection over an eight-hour period on a rainy day. By speeding up the video, it was possible to bring to life patterns around space, color and social norms that would have been impossible to document merely with the naked eye. Using my own ethnographic work as a model that includes myriad ways of incorporating digital media into the research process, my students have developed innovative approaches to their own projects, which have revealed important ways of seeing people, technologies and the built environments of the cities that they inhabit.

[1] Syllabi for these courses can be downloaded from ‹http://www.lauraforlano.org›.

[2] See ‹http://www.sentientcity.net/exhibit/›.

[3] See ‹http://archleague.org/›.

[4] See ‹http://www.sentientcity.net/exhibit/?p=53/›.

[5] See ‹http://www.govcom.org/›.

[6] See ‹https://www.issuecrawler.net/›.

[7] See ‹http://prezi.com/›.

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Sharing Research and Building Knowledge through Zotero

Mark Sample

The Question of Expert Learners

One of the great mistakes we make when we think about teaching with technology is our failure to consider what we mean by teaching, period. In other words, before we can think about teaching with technology, we need to think about teaching. Further, before we can think about teaching, we need to think about learning, about what it is we want our students to learn and why: an approach to learning that Grant Wiggins and Jay McTighe call "backward design" (13). Much of my own understanding about learning is informed by *How People Learn: Brain, Mind, Experience, and School,* a comprehensive look at what recent cognitive and developmental research tells us about learning. Co-authored by John Bransford, Ann Brown, and Rodney Cocking, *How People Learn* is underwritten by a very simple fact: experts in any given field are not experts because of what they know but, rather, because of how they learn. Experts are not experts so much as they are *expert learners.* They know how to learn. The gap between novice and expert learners is vast, but the substantial research synthesized in *How People Learn* demonstrates there are several essential differences: expert learners notice meaningful information overlooked by novices; experts organize their knowledge associatively rather than sequentially; and experts recognize that the applicability of their skills and knowledge depends on circumstances, while novices bluntly apply their

smaller skill set to every problem, even when profoundly inappropriate (Bransford et al. 19).

All of my teaching—with or without technology—is geared toward moving students along the path from novice learner to expert learner. Along the way I stress three principals, sometimes implicitly, but often explicitly:

- Intentionality
- Reflection
- Accountability

By intentionality, I mean an attentiveness to the work at hand and deliberation about how to approach that work. Reflection comes into play as the students think through what happened as they tried to reach those goals. It's about knowing what worked, what did not, and why. As for accountability, I believe that teachers and students alike should accept ownership over their intellectual work, and recognize that the humanities classroom, in its most ideal (though seldom fully-realized) form is a forum to exchange and revise ideas, a potential Habermasian public sphere. I want my students to realize that what they think and what they say and what they write matters—to me, to them, to their classmates and, quite possibly, to the world.

One need not turn to digital media to foster these principles of intentionality, reflection, and accountability. Nor is digital media necessary to transform novice learners into expert learners. But I do believe that if one is going to teach with digital media, these three principles must be in the foreground, guiding our intention as teachers, which is to help students become better learners—even expert learners. We should not ask students to blog unless we know why we want students to blog. If our own intentions are not clear, how can we expect our students' to be? Likewise, we should not ask students to be reflective unless we ourselves are ready to reflect upon our own failings in the classrooms as well as our unexpected successes. If we see something does not work, whether it's a reading, an assignment or a technology, we must be prepared to either tweak it, change it, or get rid of it entirely. Learning is not a reflex of technology. If a particular technology does not help our students learn, then it's a technology we shouldn't be using.

When it comes to technology, one promising approach to the problem of creating better learners is to teach students to become critical practitioners of the technology itself. This involves asking: What is the difference between a "user" and a "critical practitioner"? We might think of different levels of proficiency with any kind of tool or technology, ranging from inability to comfortability to expert ability. I want to argue, though, that being an expert does not necessarily mean one is a critical practitioner. In *How We Learn*, Bransford et al. point out the distinction between artisans and virtuosos. Artisans are highly competent experts in their field, and they approach problems "as opportunities to use their existing expertise to do familiar tasks more efficiently" (34). They focus on the immediate project at hand and delight in exercising their "routinized" skills. Virtuosos are experts as well, but they delight in pushing their craft beyond the accepted, beyond the familiar. Virtuosos approach problems as "as opportunities to explore and expand their current levels of expertise" (34). There's an element of playfulness with virtuosity, in the sense that Salen and Zimmerman mean in *Rules of Play:* "free movement within a more rigid structure" (304).

Play in this sense pushes the boundaries of what can be done with any given system or tool. When I think about how I want my students to use technology, I think of this kind of virtuoso performance. A critical practitioner knows the technology so intimately that he or she can make it do things it was never designed to do. The critical practitioner knows the limits of a tool—its technological, pedagogical, ideological limits—and then knows how to exceed those limits. Of course, it's not immediately evident how one goes about creating virtuosos. How do you turn naïve users of a digital tool into expert users? And how do you turn expert users into virtuoso users?

I want to introduce a pedagogical strategy that I see as essential in the transformation of a beginning learner into an expert leaner, called guided inquiry or cognitive apprenticeship. It's the idea that the teacher—the expert learner—creates an open but guided experience for the novice learner, apprenticing the student in the same kind of authentic tasks an expert in the field undertakes. A cognitive apprenticeship begins with the teacher modeling the learning activity, then the student attempting it with just the right level of scaffolding provided by the teacher, and finally, as the student becomes more proficient, the teacher gradually steps back, providing less scaffolding, a process called "fading" (Collins, Brown and Holum 8).

Sharing Research with Zotero

I've incorporated a scaffolding model into an assignment I use with Zotero.

Before I explain the assignment and how it might develop expert learners of the subject matter as well as critical practitioners of the software itself, I ought to describe Zotero, an open-source reference manager developed by the Center of History and New Media at George Mason University. Integrated tightly into the web browsing experience, Zotero can quickly capture the citation of an online catalog reference or e-journal article.[1] Zotero can also easily grab metadata from popular sites such as YouTube, Flickr, or the New York Times. Once citations are in Zotero's database, it's possible to edit them, search them, tag them with keywords, associate them with notes and PDFs, and even incorporate them directly into a word processing document in the appropriate citation style.

When Zotero was first released, it did not appear to fill an existing need. Reference managers have been available for Macs and PCs since at least the early nineties. EndNote was and remains one of the most prominent examples, but there are many similar applications available, including RefWorks and BibTeX.[2] While Zotero shares many of the same features as EndNote or RefWorks, the application is substantively different from these other reference managers. It's transformatively different, in fact. Zotero has the potential to drastically change how citations are managed, and even more importantly, how research is shared.

Zotero, both in code and practice, cultivates an ethos of openness. The latest version allows scholars and students to "publish" their Zotero collection, so that anybody can see the sources in those collections (and optionally, the notes about those sources). In my own case, I have not only shared my research collection on the Zotero site but also updated the main sidebar on my blog with a feed of my "Recently Zoteroed" books and articles. As I gather and annotate sources for my teaching and research, the newest additions appear there, with links back to the full bibliographic record in the online version of my Zotero collection. The implications of this sharing are astonishing. Imagine publishing your research notes—and only the notes—shorn of context or rhetoric or (especially) the sense of a conclusion we like to build into our papers. Imagine sharing only your Works Cited. Or, imagine sharing the loosest, most chaotic collection of sources, expanded way beyond the shallows of Works Cited, past the nebulous Works Consulted, deep into the fathomless Works Out There.

This is not the way scholars or students usually conduct research in the humanities. We are used to keeping our collection of sources private for as long as possible, holding them close to our chest as if we were gamblers in the great poker game of academia. Proprietary software like Endnote, which by default encloses research libraries within a walled garden, reinforces this notion, that the engine of scholarship is competition rather than collaboration. Zotero flips this notion on its head. Sharing is at the heart of Zotero.

Looked at prosaically, shared Zotero libraries might seem to be the equivalent of a give-a-penny, take-a-penny bowl at a local store—a quick way to discover a new reference without extensive digging through databases. This convenience alone would be useful, but the creators of Zotero are much more inspired than that. They know that sharing a library is crowdsourcing a library. The more people who know what we're researching before we're done with the research, the better. Better for the researchers, better for the research. Collaboration begins at the source, literally. As more researchers—and students—share their libraries, we're going to achieve what the visionaries in the Center for History and New Media call the Zotero Commons, a collective, networked repository of shareable, annotatable material that will facilitate collaboration and the discovery of hidden connections across disciplines, fields, genres and periods.

Zotero and Annotated Bibliographies

I've started using Zotero to transform what has come to be rite of passage for our advanced undergraduate or graduate students: the annotated bibliography. The annotated bibliography is a rite that should be questioned, as I've found little correspondence between the students' ability to annotate relevant sources and their ability to contextualize those sources within a larger scholarly conversation, let alone work them into their own contribution to that conversation. Unimpressed with the flat, disengaged annotated bibliographies my own students had done in the past, I took the idea and added several twists. My Zotero annotated bibliography assignment uses the affordances of Zotero to (1) make the students' annotations public and shareable and (2) create a three-tiered scaffolding for the assignment, in which each successive tier requires greater engagement with the material. In Tier One, students tag eight potential sources with keywords. Of those eight, students write annotations for four as Tier Two. Finally, Tier Three is an extended review of a single article from the previous step. This engagement is guided by several prompts from me, directing students to notice the article's context, methodology, and possible relevance to their own research interests.

The three tier process is obviously influenced by my belief in cognitive apprenticeship and in letting students perform the kind of work a scholar in the field might perform as second nature. I've found these annotated bibliographies to be both more useful and more doable for students than the unstructured bibliographies we usually ask them to assemble. Furthermore, because students are given the freedom to hone in on what they find most compelling, they feel a sense of investment and ownership over their bibliographies in a way I have never seen before. Finally, because the annotations are aggregated publicly in a collective online library, they form an academic commons for our class, a shared resource that represents our intellectual labor that becomes the basis for future scholarship, for both ourselves and the wider community.

The Zotero Annotated Bibliography Assignment

Introduction: This assignment serves several purposes: it is an opportunity for you to begin exploring possible questions for your final paper; it is a way to see what kinds of conversations go on amongst scholars of contemporary literature; it is a chance to rehearse the steps involved in a research project; and finally, it is an introduction to Zotero, a browser extension that simplifies the process of recording, annotating, formatting, and sharing bibliographies.

Part 1: Begin the assignment by settling upon a research topic or problem. Ideally this topic could lead to your final research paper, but it doesn't have to. The topic might be a specific writer or a specific novel, but it could also be something more general, say, trauma theory, dystopian literature, or apocalypticism in the postmodern world.

Part 2: Locate eight works of criticism or scholarship that might be relevant to your topic. Find a mixture of books and journal articles. Avail yourself of the various research databases our library has access to: the Arts and Humanities Citation Index, the MLA International Bibliography, JStor, Project Muse, etc. Once you've found one or two articles, consider "mining" their own bibliographies for possible appropriate sources.

Use Zotero to record the bibliographic information of each of your eight sources. If you're using any of the library's databases or online catalogs, it is supremely easy for Zotero to "grab" the citation information (and associated PDF files as well). Store your eight citations in a new Zotero collection (so that they will easily stand out from any existing citations you have gathered in the past).

Part 3: We will have a three-tier system of annotations, in which each successive level requires deeper engagement with fewer sources:

Tier One: Use Zotero's tagging feature to tag all eight sources with 5-10 relevant tags, or keywords. Base your tags on the title, author, subject, abstract, or other pieces of metadata you find associated with the source.

Tier Two: Decide which four sources sound the most promising or interesting and look at them up close. You don't need to read these four books or articles all the way through. Look at introductions and conclusions and skim through the rest. Try to get a sense of the argument and approach of each of the pieces of scholarship. Synthesize what you learn about each of the texts, and record your findings as an annotation in the Notes tab for each citation in Zotero. These annotations should be no longer than several sentences. Think of them as your capsule description of the book or article, highlighting what is most worth mentioning about the piece of scholarship. They should give you (or another researcher looking at your bibliography) a snapshot of the source.

Tier Three: Out of the four sources you annotated, select one article (not book) to read thoroughly. Write a two-page response to the article in which you consider these questions:

- Who is the article's intended audience? That is, specialists, the general public, scholars with certain interests, something else entirely?
- What is the central claim or question of the article?
- What is your response to the article's argument—do you find it persuasive, unpersuasive, interesting, uninteresting? Explain your response.
- What do you notice about the article's methodology—the kinds of evidence the writer draws on and the critical approach the writer takes in framing a question or problem to analyze?
- How does the scholar situate his or her argument in relationship to other critics? That is, does the scholar write to undercut x's argument, or to build on y's argument, or in agreement with z's argument? How does the argument signal its participation in a larger critical conversation?
- What questions come to mind as you read the article?

Part 4: We will use Zotero's Group feature to share our resources with each other online. After you have finished the first three parts of the assignment, you can drag your eight sources from the Zotero collection on your computer to an online Group that I will set up for the class.

Also, export your Zotero collection of eight sources as a Zotero RDF file (be sure to include the notes and files when the option comes up). Email the re-

sulting file to me. Also email your response to the single article as well. This material is all due Tuesday, November 24.

Once I have everyone's annotated bibliography via Zotero, I will compile all the citations from all the students into one large bibliography, which I will post online, and which we can begin using as a shared resource.

Reflections upon the Zotero Assignment

I have used versions of the above assignment with both undergraduate and graduate students, and I continue to refine it. While most of my revisions have so far focused on tweaking the third tier questions, what seems most promising for the future is making greater use of the final, shared bibliography—that aggregation of twenty-five or so individual student bibliographies.[3] Imagine students compiling a shared bibliography, with annotations, early in the semester. How might the class respond to and build upon such a pool of research as the semester goes on? Even more tantalizing: how might the class's shared bibliography contribute to the broader community of students and scholars addressing the same research questions? How might students use Zotero to form connections between themselves and other researchers, a pivotal moment in the gradual transition from novice to expert learner, and a step as well in the transition from user of Zotero to critical practitioner of Zotero? These questions and others like them should be in the foreground as we incorporate Zotero and other social media experiences into our pedagogy. Intentional design and reflecting upon the results of that design is essential if, as professors, we also want to become critical practitioners of the tools we use in our teaching.

[1] Zotero can be freely downloaded from ‹http://www.zotero.org/›. While the current version of Zotero is a plug-in for Mozilla's Firefox browser, a new version called Zotero Everywhere will be a cross-platform standalone application, featuring integration with the other major web browsers, including Chrome and Safari.

[1] See the following sites for information about these other reference management software packages: EndNote ‹http://www.endnote.com/›; BibTeX ‹http://www.bibtex.org/›; and RefWorks ‹http://www.refworks.com/›.

[3] For an example of a group bibliography from one of my own classes, imported from Zotero into MIT's Citeline interface, see ‹http://www.samplereality.com/gmu/spring2009/660/classbibliography.html›.

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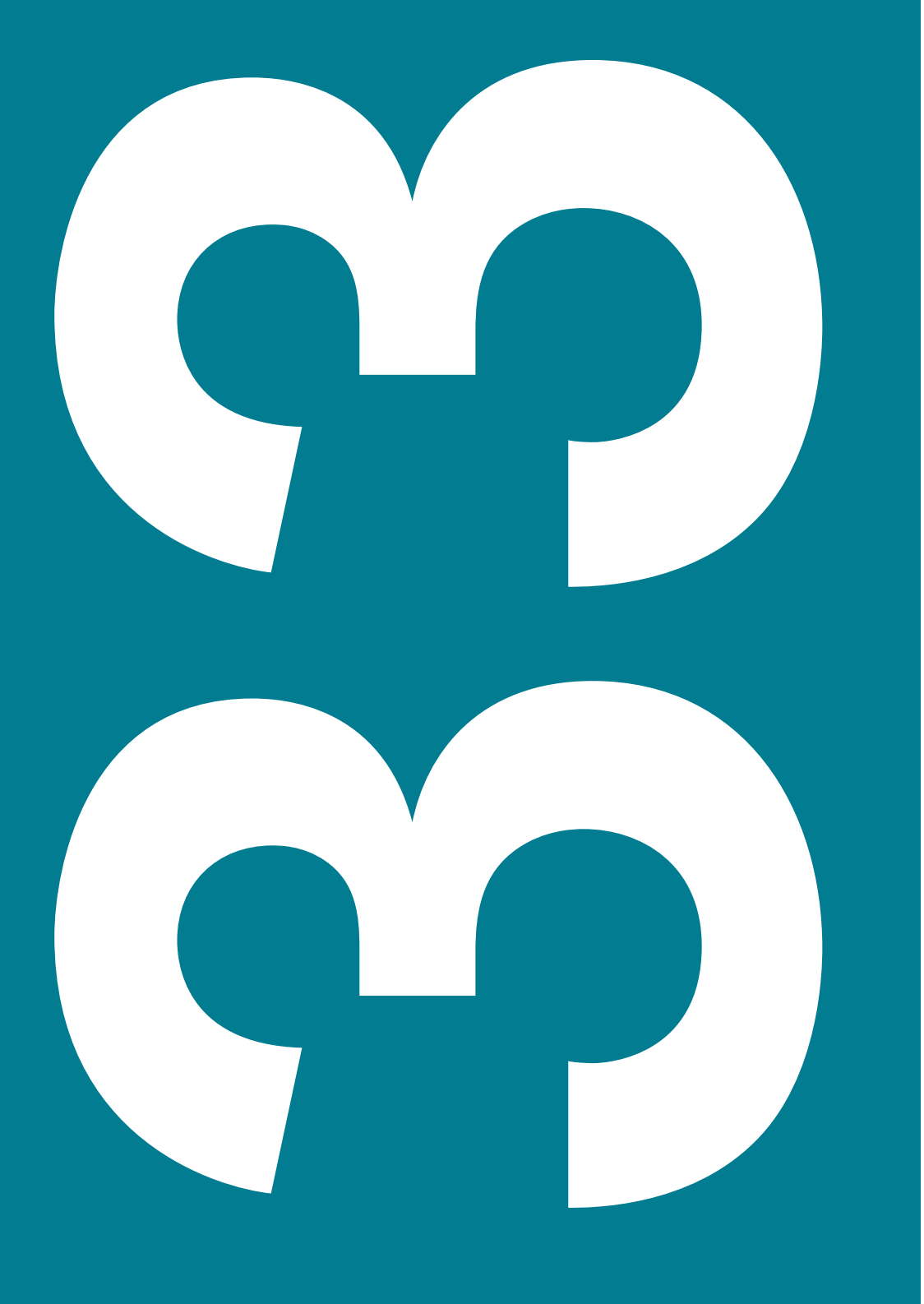

The Wicked Problem of Pedagogy, An Afterword

Elizabeth Ellsworth

In the end, education isn't a question of appropriate, acceptable, or productive formats. Even after all is said and done in a classroom or in a collection of essays about "learning through digital media," the question of pedagogy continues. Pedagogy is what needs to be worked out again and again (Schmitz 147).

This is because pedagogy is not a system and cannot be systematized. Pedagogical set-ups function only in theory. What is set up in a pedagogical design and what students and teachers actually take up are neither scripted nor linear. To think pedagogically is to think in terms of, and in the midst of, situations and the highly particular. Pedagogy "disciplines" through the passion for learning, not through rules or systems. It disciplines through curiosity and exchange, not through predetermined objectives and goals. Pedagogy does not follow rules, nor does it rule—but it is also NOT antagonistic or chaotic. Pedagogy is a living form.

Pedagogical designs need to be worked out again and again.

The institutionalization of learning has to do with the possibilities for change—with learning's need to be different each time. The job of an institu-

tion of education is to administer for, with, and to pedagogy's need to be worked out again and again. This is also the job of any digital learning platform or environment. Including this book—which places in productive tension its diverse accounts of efforts to create pedagogical set-ups that are as alive and unprecedented as are the situations and students they address.

Pedagogy, in other words, is a wicked problem—not a strategy.

Wicked problems are problems that can't or haven't been fully defined. Questions about them can always be asked and reformulated. There is no explicit end to a wicked problem because solutions can always be developed further. Differing formulations imply differing solutions—which are never either correct or incorrect, but for which plausible alternatives, other pathways and approaches, are always possible.

Education is wickedly in and of the world. It's not a response to the crisis (from somewhere else). It is a contributor to and a participant in the world's ongoing complexities—in its continuation (Rogoff 39).

Complex contemporary problems (technical, social, global, economic, ethical) are now leading new social collectivities to experiment with aspects of learning not often recognized (and sometimes devalued) in higher education: emotional dimensions, affective connection, embodied and emplaced learning, activating capacities for risk-taking and uncertainty, collaborative thinking, "thinking with" objects and media, making as thinking, abductive participation and thinking, speculative knowledge production.

These all are efforts to grapple with an urgent question: What modes of thinking-sensing might be of most use within contemporary conditions? Some responses to that question are provoking shifts in valuation, from valuing codified knowledge above all to evaluating emergent knowledge that is not yet fully articulated or "understood," and from valuing structure as basis, starting point and perspective to valuing process/motion/change as basis, starting point and perspective.

For some, preoccupations with cognition are giving way to curiosity about how we might design and facilitate learning environments that activate complex human relational dynamics: mind-brain-body + material situation + human interdependence.

It is as if Western and Westernized humans are rediscovering the force of the "brute materiality" of embodied life on planet Earth. Increasingly, it seems that contemporary lived experiences are throwing into sharp relief the fact that what is "most real" are not forms, essences, themes, or objects, but rather, forces, intensities, densities, movement, change.

For those who eagerly engage with wicked problems, the attractive force of knowledge as a thing made is giving way to the attractive force of "knowledge in-the-making." This shift is happening at the hands of hybrid artists-teachers-researchers-communicators-activists—those provocative testers who design and make doubt-filled gestures, equivocal objects, tentative projections, hopeful anticipations, physical encounters. The attractive force of questions that strive for cognitive command and control—for definition, categorization, and certainty—is giving way to the attractive force of questions framed as "wicked problems."

In *Reinventing Knowledge: from Alexandria to the Internet,* Ian McNeely has declared that a shift in cultural habits is taking place. There is an impatience for new ideas and means. He charts how this shift is redirecting institutions of learning and knowledge production from: monastery to university to laboratory to social platform; codifier of knowledge to knowledge producers; curriculum to conversation; and teacher to student transfer to self organizing research and activities (McNeely).

The life of the mind, which is the whole basis for previous models of education, McNeely says, is undergoing a structural transformation (xxi).

It appears that it is impossible to either escape from or master education as a wicked problem. So, what if we use pedagogy to explore precarity's potential? What if we use pedagogy to pursue wobbly balancing acts and moments of fleeting equilibrium, and to gracefully parry the forces that act upon us?

According to McNeely, the next knowledge institution will be a hybrid of experimental knowledge production + disciplinary knowledge. It will apply learning in experimental settings to engage with public needs, most likely in response to environmental urgencies. The next knowledge institution will connect the production of knowledge with the production of consequences.

Because it is processual, learning is unrepresentable: its means and ends emerge in the flow of activity. And this means there is no basis or regularity on which education's effects and affects can be staked.

To paraphrase Schmitz, the stake of education resides in the "unscripted conjunctions and confusions between what is set up, what is produced and what can be done . . . and that what is triggered in the process matters to education but is never part of its original set-up" (Schmitz 143). Which brings Schmitz to the question: what is it about education that is actually worth charting—or, as they say, assessing? The pedagogical set-up is a teaser, a guess, a speculation. It's a summoning of best guesses. It's a speculation that attempts to suture and suspend what is a crucial amount of slippage between the external architecture of a pedagogical set-up and whatever may play out inside the undisclosed, internal take-ups by student bodies. The "results" of a pedagogical set-up don't respond to given questions or problems or solutions. They generate problematics instead (Schmitz 141-3).

What is made of pedagogy is how we assess it. That is why "learning" requires wicked forms of "assessment."

The experience of learning is an experience of thinking-sensing differently. Pedagogy's dream and desire is to spring lived events of thinking-sensing-becoming different. When learning is non-compliant, it opens the future to difference. Non-compliant learning is what learning can sometimes become when we aren't channeling it into "training," or when we entice it to inaugurate something new and previously unthought. In non-compliant learning, the pedagogical event is a strange becoming. Here, learning is not something that happens to us. Nor is it something in us. We are in learning whenever we learn.

In the midst of a non-compliant learning experience, knowledge is no longer a thing made. It undergoes a phase shift to become a thing in-the-making.

The space and time of this shift is precisely where and when pedagogy's power becomes apparent and actualized. In the event of this shift, pedagogy opens the future to difference.

After all, as a thing made, knowledge already arrived at is merely half-living. But its inadequacy for life is exactly what makes it useful and valuable. Its failure as permanent answer, absolute truth, or complete solution becomes a potent provocation to action. Pedagogy that desires noncompliant learning honors received knowledge for the way it can be made to function as a "promise, as that which, in the future, in retrospect, yields a destination or effect, another thing"—another knowing (Grosz 169). Knowledge as a thing made is honored by noncompliant learning—but only to the extent that it gives itself up to being remade to suit the here and now.

This means that the work of pedagogy is to tear teachers and students away from the curriculum's static objects of mourning, and challenge their loyalties to knowledge-objects—those ways of knowing that were created elsewhere at another time and to be made responsive to contemporary conditions. Allegiance to theories or knowledge already arrived at runs the risk, Winnicott warns us, of "becoming a compliant act, of pre-empting the personal and the unexpected" (Phillips 54).

Pedagogy takes place at the turbulent point of matter crossing into mind, experience into knowledge, stability into potential. This the risk-filled time and space of pedagogy.

And this is why pedagogical designs must address us to and from pedagogy's own limits. A pedagogical design must present us with the irritation of the limits of our—and education's—knowledge.

What to do: Enhance, engage, trigger, increase slippage to a point of productive tension—not to destabilize, but to set free effects produced under and beyond the radar of systemic conditions (this is the set-up).

Work for ever-expanding vocabularies and repertoires of pedagogical effects rather than "tuned sets" of strategies.

Design pedagogical set-ups for the day after tomorrow rather than for permanent projections of an ideal future.

Foster and allow for constellations of pedagogical set-ups and take-ups that can be inhabited outside the payoff of a programmed for or pre-accounted for education.

Work with the fact that something doesn't seem to fit.

Work with a confused awareness that this misfit may be productive by causing concerns and problems.

Talk about formats and effects in such a way that they don't cohere into a program because it's not a question of appropriate or acceptable or productive formats.

Keep asking: what formats are worth inhabiting under which terms and how might that inhabitation possibly play out? (Schmitz 144-7)

Schmitz argues that there is potential evolutionary advantage to taking actions such as these. They set us up to deeply inhabit the complexities and potentialities of pedagogy. They set pedagogy up to become a more sophisticated conceptual machinery for analysis and diagnosis of the present (146). They also afford a more effective grasp of the fact that what is most real is the brute materiality of an external world that cannot be mastered. And such actions engender a parkour-like ability to navigate within, across, against, and in-accord-with a world that will always breech what we think we know.

Perhaps this gives us a way to grasp the pedagogical value of learning through digital media, and more broadly, the value of staging this edited collection and the Mobility Shifts summit, at this particular moment. Namely, as emergent phenomena, digital media have outrun the grasp of all sorts of already-arrived-at-knowledge. Digital media present us with the irritation of the limits of our own—and education's—knowing. We don't quite know what to make of digital media as teachers. And that is their power and potential for us as educators. As the essays collected here demonstrate, digital media are making something (else) of us as much—if not more—than we are making of them. The challenge is not to make digital media learning products. The challenge is to make digital media learning products pedagogically (Aguirre 185). To make visible and palpable where a pedagogical project hits our current limits of thinking and knowing.

As a condition of contemporary life, digital media bring us to the limits of what we think we know. And that is a perfect place to site projects of pedagogical design.

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A Digital Learning Tool Kit

I. Free, Libre, and Open-Source Software Overview

The use of FLOSS allows students to become independent from costly software updates. It also avoids the risks that come with illegally downloaded software. The cost of ownership of open source software is often far less than proprietary software but FLOSS tools are not always the best technical choice for the needs of users. These manuals provide a good overview of Free, Libre, and Open-Source Software that students and faculty may find useful.

1. Manuals for Free, Libre, and Open-Source Software (FLOSS)
http://en.flossmanuals.net

II. Collaborative Writing (and Visual Review)

Students share and comment on each others' written work. Such collaborative writing works well in the context of smaller, seminar-style courses. Students can share their essays and leave comments on a specific paragraph (e.g., Google Docs).

A. Writing

1. http://mixedink.com
2. http://writer.zoho.com
3. https://docs.google.com

B. Review of Visual Projects

1. http://thecommentor.com
2. http://mocksup.com

III. Course-Related

A. Presentation Tools: Beyond Keynote and PowerPoint, OpenOffice (a free, Microsoft Office equivalent) includes a presentation tool similar to the two proprietary market leaders. Prezi is a platform that, if used well, can diversify present-

ation formats. Prezi is free for students who can also remove their talks from pubic view. Some students find it hard to understand how to import high-resolution images, download their talks, and create presentations that are not completely dizzying.

1. http://www.scribd.com
2. http://omeka.org
3. http://prezi.com
4. http://animoto.com
5. http://www.openoffice.org
6. http://www.zentation.com
7. http://slideshare.net

B. Create Web-Based Timelines

1. http://linehive.com

C. Blogging

Use Tumblr for Twitter-like but media-rich blogging.

1. http://tumblr.com

D. Micro-Blogging

Identi.ca is a free, Canadian, open-source alternative for micro-blogging. Use Twitter to create a hash tag for your large class (70 students or more) and ask students to Tweet questions during class while you project the Twitter search page. Use Twuffer to schedule Tweets ahead of time.

1. http://identi.ca
2. http://twitter.com
3. http://www.twuffer.com

E. Social Networking Services

Ning involves fees and can only be used for small classes, but is easy to use and allows private posting. While some educators make extensive use of Facebook for teaching, others question its usefulness and criticize its entanglement with commercial surveillance and its frequent privacy hiccups. BuddyPress is a WordPress plug-in that can be used to create a social networking service, though the process requires a tech-savvy individual.

1. http://www.ning.com
2. http://www.elgg.org
3. https://n-1.cc and https://joindiaspora.com
4. http://facebook.com
5. http://buddypress.org

F. Screencasts

Use screencasts to narrate and record short screen interaction, do quick walk-through software demonstrations, or document online activity. Ambrosia is a robust but proprietary product whereas TechSmith is free but not as robust. Screenr is ideal for short screencasts or quick, how-to, walk-through demonstrations for students.

1. http://www.ambrosiasw.com/utilities/snapzprox
2. http://www.techsmith.com/jing
3. http://screenr.com

G. Print-On-Demand Publications

Print-on-demand publications are useful for students who want to create a portfolio or publish their final essay in book form. Students often work harder if the end result is a printed publication. The cost for a black/white book of 8000 words is about $12. Blurb is easiest for beginners to use as it requires no technical knowledge, but it does not allow for a free PDF version of the publication if one uses their software. Blurb reproduces color more favorably than does Lulu. Furthermore, Lulu does not offer simple design software.

1. http://www.blurb.com
2. http://www.lulu.com

H. Podcasts

Listen to lecture recordings from a large number of universities on iTunes U, or use Profcast to record slideshows with audio and upload them to the Web.

1. http://www.apple.com/education/itunes-u
2. http://www.profcast.com/public/index.php

I. Mobile Platforms

Undergraduate students pay less and less attention to email. They pay more attention to class-related communication if you use SMS. Services like GroupMe allow you to create chat rooms for groups. This works well in small classes. Such services do not work well in large classes as they create too much noise. Use GroupMe to create one phone number for a group chat room and send text messages from your gmail account.

1. http://groupme.com

J. Content Aggregation

Use Google Reader to aggregate blogs from all over the Web and save time by viewing updates to all sites in one interface instead of traveling from site to site.

3. http://www.google.com/reader

K. Personal Dashboards

Aggregate a variety of websites throughout the semester for your students to read, follow, and respond to.

4. http://www.google.com/ig
5. http://www.netvibes.com/en

L. Collaborative Topic Mapping

Ask students what they learned in your class. They can write concepts and names on Post-it notes and then group them in clusters on a wall. Finally, a group of students with laptops transfers these topical groupings to a collaborative map online. Students may be surprised how much they learned. Such maps are also helpful when preparing for exams.

6. http://www.mindmeister.com
7. http://freemind.sourceforge.net
8. http://dropmind.com
9. http://www.mindnode.com
10. http://bubbl.us
11. http://creately.com

IV. Collaborative Research

M. Platforms Facilitating Group Work

1. http://tgethr.com
2. http://www.mynetresearch.com
3. http://onehub.com

N. Instant Messaging

Use Skype to host guest lecturers for short, synchronous video lectures and conversations with students. Skype also allows for conference calls with multiple participants.

4. http://skype.com
5. http://google.com/talk
6. https://register.jabber.org

V. Organizational/Administrative Tools

O. Document Sharing

Use PB Works to create Wikis free of charge, bearing in mind that this tool does not facilitate tracking new information.

1. http://pbworks.com
2. http://www.scribd.com
3. http://issuu.com
4. http://www.docstoc.com
5. http://docs.google.com

P. Text Expander

Use TextExpander to save and easily paste frequently used snippets of text.

6. http://smilesoftware.com/TextExpander

Q. Google Docs

1. http://docs.google.com

R. PDF Merging Online

2. http://www.nitropdf.com/free/hammer/index.htm

S. Classroom Voting

Students in large classes can formulate questions and vote on them.

3. https://www.google.com/moderator

T. Share Large Files

4. http://www.4shared.com
5. https://www.dropbox.com
6. http://drop.io
7. http://yousendit.com
8. http://rapidshare.com

U. Scheduling Appointments

9. http://www.doodle.com
10. http://timebridge.com

V. Screen-Sharing

11. http://www.beamyourscreen.com
12. http://www.oneeko.com

W. Live Streaming

13. http://www.ustream.tv
14. http://www.livestream.com

VI. Research

X. Attention

Temporarily block access to the Internet or selected social software services.

1. http://macfreedom.com/
2. http://anti-social.cc

Y. Annotate Websites

3. http://www.zotero.org
4. http://diigo.com

Z. Bibliography

5. http://www.librarything.com
6. http://citeulike.org
7. http://www.zotero.org

AA. Archive and Reference Academic Work

8. http://www.mendeley.com

BB. Search

9. http://vivisimo.com
10. http://search.yippy.com
11. http://search.carrot2.org
12. http://www.editgrid.com

Acknowledgements

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Praise for *Learning Through Digital Media*

Technology isn't going to solve the problems of education today—that's magical thinking. But digital media, properly used, can enlist the enthusiasm, curiosity, and collaborative instincts of students. The kind of pedagogy and learning that digital media make possible is both the subject of this richly useful new book, and the method used to create it.

Howard Rheingold, a critic and educator, author of *Smart Mobs: The Next Social Revolution and The Virtual Community: Homesteading on the Electronic Frontier.* http://howardrheingold.com @hrheingold

A stellar group of scholars examine a wide range of platforms and programs reshaping pedagogy. These researchers are committed to the social implications of technology and learning, both in the classroom and in the public sphere. Thoughtful and engaged, these essays help us rethink our pedagogical assumptions through the limits and affordance of digital media. This is an indispensable collection for educators interested in the future of their practice.

Jack Bratich, Associate Professor of Journalism and Media Studies at Rutgers University, author of *Conspiracy Panics: Political Rationality and Popular Culture.*

The collection *Learning Through Digital Media* offers a grounded analysis of a number of significant and recent situations of online learning. The collection appropriately includes examples of uses of online services with influence and application beyond classrooms (Google Wave, Facebook, Twitter, Zotero, Flickr, Ushahidi and Wikimedia). In these environments student learning opens onto more diverse and authentic vectors of connection than most uses of closed e-learning platforms. As such, the collection is important both as pedagogical insight and as timely cultural politics.

Chris Chesher, Senior Lecturer in Digital Cultures at The University of Sydney.

What a tremendous critical resource for students, faculty and anyone else seriously interested in how contemporary media have and will continue to shape the landscape of teaching and learning.

Joel Slayton, artist, writer, full professor at San Jose State University, executive editor of Switch (http://switch.sjsu.edu), and director of the art and technology network ZER01 (http://zero1.org) and CADRE, Laboratory for New Media.

Learning Through Digital Media opens up a critically needed conversation between educators about what's going on inside their classrooms as they confront the potentials and challenges of the new social media and participatory culture. The essays here are alternatively comforting and challenging, skeptical and enthusiastic, about what it means to bring networked communication, collaboration, and participation into the pedagogical process, about the challenges of deploying commercial tools to work in educational contexts, about how their expectations and their student's experiences diverge and converge, and about the kinds of improvisation that must take place as we experiment with still wobbly tools and emerging practices. There's plenty of practical, applied advice here from those who have walked the walk, but there's also enough scholarly insights to help us understand the whys and wherefores of the changes taking place all around us. Most excitingly, this is not a book about technology; it's a book which sees the social and cultural changes impacting education as being every bit as profound as the issue of whether to Facebook or not.

Henry Jenkins, *Confronting the Challenges of a Participatory Culture,* Provost's Professor of Communication, Journalism, Cinematic Arts, and Education, University of Southern California. http://www.henryjenkins.org

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http://www.meganboler.net

Trained as cultural anthropologist, **Gabriella Coleman** researches, teaches, and writes on the politics of digital media, digital activism, hackers, and trolls.
http://steinhardt.nyu.edu/faculty_bios/view/Gabriella_Coleman
http://gabriellacoleman.org/blog

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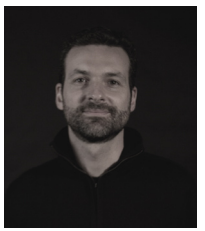
http://www.humanities.uci.edu/critical/kp/index.html

McKenzie Wark is the author of *A Hacker Manifesto*, *Gamer Theory* and various other things. He is Professor of Culture & Media at The New School for Social Research and Eugene Lang College.
http://twitter.com/mckenziewark

Biographies

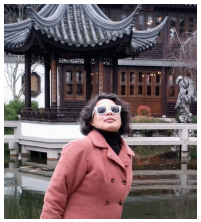
Jonah Bossewitch works full-time as a technical architect for Columbia's Center for New Media Teaching and Learning (CCNMTL). He is also a doctoral candidate in Communications at Columbia's School of Journalism where he is investigating the politics of memory at the intersection of corruption in psychiatry and pharma. Jonah has over a decade of experience as a professional free software developer whose technical interests include GNU/Linux, Python, content management, and social software. He serves on the board of QuestionCopyright.org and is an advocate for free software/culture, mad pride, and social justice. He is a native New Yorker who loves to bike ride, travel, scuba dive, and play the bass. He blogs at http://alchemicalmusings.org. Jonah completed an MA in Communication and Education at Teachers College ('07) and graduated from Princeton University ('97) with a BA Cum Laude in Philosophy and certificates in Computer Science and Cognitive Studies.

Jonah Brucker-Cohen is a researcher, artist, and writer. He received his Ph.D. in the Disruptive Design Team of the Networking and Telecommunications Research Group (NTRG), Trinity College Dublin. He is an adjunct assistant professor of communications in the Media, Culture, Communication dept of NYU Steinhardt School of Culture Education and Human Development. His work and thesis focuses on the theme of "Deconstructing Networks" which includes projects that attempt to critically challenge and subvert accepted perceptions of network interaction and experience. His writing has appeared in numerous international publications including WIRED Magazine, Make Magazine, Neural, Rhizome.org, Art Asia Pacific, Gizmodo and more, and his work has been presented at events such as CHI, UBICOMP, SIGGRAPH (00,05), Transmediale, Institute of Contemporary Art London, Tate Modern, Whitney Museum of American Art, Ars Electronica, ZKM Museum of Contemporary Art, Museum of Modern Art, and the San Francisco Museum of Modern Art and more. His website is http://www.coin-operated.com, and he can be found on Twitter @coinop29 and @scrapchall.



David Carroll is assistant professor of media design and Director of the MFA Design and Technology graduate program at the School of Art, Media and Technology at Parsons The New School for Design. His pedagogy and research surrounds digital media, especially for mobile devices, towards a critical practice and theory of software and interaction design as social engagement. His work crosses multiple fields of art, design, education, sciences, humanities, and policy among both private and public-

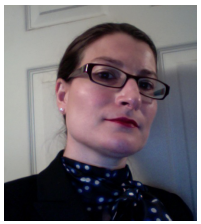
interest enterprises. He founded the Center for Mobile Creativity to support research grants from Pearson Foundation, MacArthur Foundation, NIH/NIDA, NSF and Nokia Research Centers. His website is http://dave.parsons.edu, and he can be found on Twitter @aquarious. *Photo: Phillip Retuta.*



Abigail De Kosnik is an Assistant Professor at the University of California, Berkeley in the Berkeley Center for New Media (BCNM) and the Department of Theater, Dance & Performance Studies. She is the co-editor of *The Survival of Soap Opera: Transformations for a New Media Era*, published by the University Press of Mississippi in 2010. She teaches courses such as Sound Design & Media Theater, Performance & Technology (http://perfandtech.tumblr.com), Performance & Television, New Media History & Theory, and Asian/American Performance Across Media. Her Twitter account is @De_Kosnik.

Craig Dietrich is on the faculty of USC's Institute for Multimedia Literacy, part of the School of Cinematic Arts, where he teaches scholarly multimedia and web-based production classes and develops interactive scholarship as Info Design Director for the Vectors Journal. Online collaborations include the *Mukurtu Archive* and *Plateau People's Web Portal* content manager based on Aboriginal cultural protocols; *ThoughtMesh*, a folksonomic online publishing system; the *Dynamic Backend Generator,* a MySQL-based relational data writing canvas; and *Scalar,* a new scholarly publishing platform based on semantic web technology. He is presently in production of *Magic,* a documentary about humanist-programmer collaborations. His presentations and papers are situated at the intersection of trans-nationalism, corporate hierarchies, and local economies, having compared prevalent database paradigms to big-box retail chains, linked Bataille's "formlessness" to RSS feeds, and championed custom, agile software over large content management systems for digital humanities production.

Kathleen Fitzpatrick is Professor of Media Studies at Pomona College, where she teaches courses on digital media theory and electronic textuality. She is author of *The Anxiety of Obsolescence: The American Novel in the Age of Television,* published in 2006 by Vanderbilt University Press, and of *Planned Obsolescence: Publishing, Technology, and the Future of the Academy,* forthcoming from NYU Press and available for open peer review online (http://mediacommons.futureofthebook.org/mcpress/plannedobsolescence). She is co-founder of the digital scholarly network MediaCommons (http://mediacommons.futureofthebook.org), and has published articles and notes in journals including the Journal of Electronic Publishing, PMLA, Contemporary Literature, and Cinema Journal.



Laura Forlano is a writer, researcher and consultant based in New York City. Currently, she is a Postdoctoral Associate in the Interaction Design Lab in the Departments of Communication and Information Science at Cornell University. Forlano received her Ph.D. in Communications from Columbia University in 2008. Her dissertation, "When Code Meets Place: Collaboration and Innovation at WiFi Hotspots," explores the intersection between organizations, technology (in particular, mobile and wireless technology) and the role of place in communication, collaboration and innovation. Since 2007, Forlano has been an Adjunct Faculty member in the Design and Management department at Parsons and in the Graduate Program in Media Studies at The New School where she teaches courses on Design and Everyday Experience, The Service Experience, Innovation, New Media and Global Affairs, and Technology and the City. She can be found on Twitter at laura4lano and the syllabi for her courses can be found at http://lauraforlano.org.

Sol B. Gaitán was born in Colombia, South America where she studied journalism. She came to the US to complete a M.A. in Spanish Literature at West Virginia University. She moved to New York City to go to the movies and to work on a Ph.D. in Spanish and Portuguese Languages and Literatures at New York University. She was offered a position at the Dalton School, where the freshness of children and adolescents and the high standards of the school intrigued her. She remains there. She is also a poet and a translator. She has translated into Spanish the poetry of Bob Holman, and some classics, among them *Oliver Twist* and *The Wizard of Oz*. She has adopted and adapted software for teaching from Spanish 1 to Hispanic Literature. She wrote an electronic annotated version of Federico García Lorca's *Poema del cante jondo* (http://futureofthebook.org/sophie), and an electronic adaptation of a textbook for Spanish beginners. She has used Commentpress for the creation of blogs on Pablo Neruda (http://blogs.dalton.org/pablo_neruda), Miguel de Unamuno (http://blogs.dalton.org/aplit_unamuno), Jorge Luis Borges (http://blogs.dalton.org/borges), Rubén Darío (http://blogs.dalton.org/gaitan_dario), Julio Cortázar (http://blogs.dalton.org/julio_cortazar), Ana María Matute (http://blogs.dalton.org/matute), and Gabriel García Márquez (http://blogs.dalton.org/marquez).

Vanalyne Green works in video and film, though recent years have seen her experimenting with conceptual works that include sculptural objects. She is of that generation of American artists whose artistic careers developed contemporaneous to that of feminism in its sociological sense. Her interest in art education stems from the radical teaching methodologies of Judy Chicago's first feminist art program and then at CalArts with Sheila Levrant de Bretteville. Green has screened her videos extensively, including at The Whitney Biennial and Rotterdam International Film Festival, among other venues. A recipient of a Guggenheim Foundation fellowship, as well as grants from Creative Capital, the Jerome Foundation, the National Endowment for the Arts, and a Rome Prize at the American Academy in Rome, her videotape "A Spy in the House that Ruth Built" was listed as one of the 1,000 best films ever made by film critic Jonathan Rosenbaum. Recently, she's contributed to *What Do Artists Know?,* a forthcoming anthology edited by James Elkins.

Matthew K. Gold is Assistant Professor at New York City College of Technology (English) and CUNY Graduate Center (Interactive Technology and Pedagogy). Recent and forthcoming work includes articles in *The Journal of Modern Literature*, *On the Horizon*, and *Kairos*, and a chapter in *From A to ‹A›: Keywords of Markup* (Minnesota 2010). He is currently editing a collection of essays on recent debates in the Digital Humanities, planned for publication in 2012. His projects include "Looking for Whitman" (http://lookingforwhitman.org), a multi-campus experiment in digital pedagogy sponsored by two NEH Digital Humanities Start-Up Grants, and a recently awarded $3.1 million Title V Grant from the U.S. Department of Education. He serves as Project Director of the CUNY Academic Commons (http://commons.gc.cuny.edu) and Co-Director of the CUNY Digital Humanities Initiative. *Photo: Yaniferz Cantor.*

Alexander Halavais is Associate Professor teaching interactive media at Quinnipiac University. He has been teaching for more than 25 years, playing with kindergarteners, mentoring doctoral students, and at every level in-between. His current research examines the role of analytics in social change, particularly in learning environments. He works with the Digital Media and Learning Hub, based at the University of California, and on a range of projects that engage learning outside of traditional educational institutions. He blogs at http://alex.halavais.net, and tweets @halavais.

Kevin Hamilton is at University of Illinois in Urbana-Champaign, where he is Program Chair of New Media for the School of Art and Design, and an Associate Professor in the Department of Media and Cinema Studies. He regularly teaches courses in video, interactive media, and digital imaging, with emphases on critique, reflection, and collaboration. His student workshops on collaboration, appropriation and design have taken him to Cornell, Emily Carr, Brandeis, and Grand Valley State Universities; presentations on education in digital media have included talks for the College Art Association, Syracuse University, and ACM/CHI. Publications on teaching also include an essay in the volume *Imaginary Syllabii* (Palm Press, 2011). Kevin is currently working on a new digital archive of American nuclear propaganda and training films, including relevant material from the domains of advertising and cinema. You can follow his teaching and research at http://complexfields.org, http://www.kevinhamilton.org, http://www.delicious.com/kham, and on Twitter @complexfields.

Tiffany Holmes is an artist and educator whose work explores the potential of technology to promote positive environmental stewardship. Recent projects include a commission for the National Center for Supercomputing Applications where experimental animations visualize real time energy loads. Her essay detailing this work, "Eco-visualization: Combining art and technology to reduce energy consumption," won *Best Paper at Creativity and Cognition 2007* and a recent doctoral degree. Holmes has earned many awards: Michigan Society of Fellows research fellowship, Illinois Arts Council individual grant, an Artists-in-Labs residency in Switzerland, and a 2010 Rhizome Commission. Holmes is Associate Professor, and former Chair of the Department of Art and Technology Studies at the School of the Art Institute of Chicago where she teaches courses in computer programming for artists, interaction design, eco-art, and the social web. She will become Interim Dean of Undergraduate Studies in August 2011.

Adam Hyde is the founder of FLOSS Manuals, project manager for Booki and Book Sprint facilitator. Adam has been responsible for pushing the Book Sprint methodology from a 3-6 month process to a 2-5 day process. Adam is currently very interested in pushing the Book Sprint methodology into new content areas and exploring its boundaries as much as possible. He can be reached at: adam@flossmanuals.net.

Photo: 2009, © Beatrice Murch.

Jon Ippolito is an artist, writer and curator born in Berkeley, California in 1962 who turned to making art after failing as an astrophysicist. After applying for what he thought was a position as a museum guard, Jon was hired in the curatorial department of the Guggenheim, New York, where in 1993 he curated Virtual Reality: An Emerging Medium and subsequent exhibitions that explore the intersection of contemporary art and new media. In 2002 Jon joined the faculty of the University of Maine's New Media Department, where with Joline Blais he co-founded Still Water, a lab devoted to studying and building creative networks. His writing on the cultural and aesthetic implications of new media has appeared in The Washington Post, Art Journal and numerous art magazines. More at http://www.three.org/ippolito.

Jessica Irish is an Assistant Professor of Design & Technology and the Director of Academic Affairs for the School of Art, Media & Technology at Parsons, The New School for Design. Her design research focuses on the application of dynamic media to empower communities through collaborative information mapping and non-linear storytelling. Current design projects include DataMYNE and Urban Research Tool. She has previously taught at Wellesley College, UCLA, UCSB and was the founding principle of OnRamp Arts, an award-winning digital arts non-profit in central Los Angeles that produced innovative new media projects in collaboration with local communities and artists. Both her design work and art work have been exhibited and screen nationally and internationally.

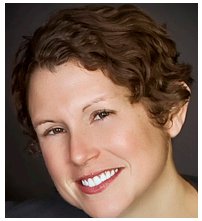
Patrick Lichty is a technologically-based conceptual artist, writer, educator, and independent curator, and Executive Editor of Intelligent Agent Magazine. He began showing technological media art in 1989, and deals with works and writing that explore the social relations between us and media. He is Assistant Professor of Media Theory and Experimental Media at the Department of Interactive Arts & Media at Columbia College Chicago. He works extensively with virtual worlds, including Second Life, and is Director of the "I AM COLUMBIA" region in SL. His work, both solo and with his Virtual Worlds performance art group, Second Front, have been featured in Flash Art, Eikon Milan, and ArtNews. *Photo courtesy of Anne Helmond*

Mark Lipton is an Associate Professor in the College of Arts at the University of Guelph. He runs the *Media Education Project,* funded by the *Canadian Council on Learning* and the *Social Sciences and Humanities Research Council of Canada.* As an advocate for media literacy, his research assesses Canadian teachers and their engagement with media and ICTs in teaching and learning contexts. In the classroom he strikes a balance between theory and practice by using alternative pedagogical models from multidisciplinary perspectives. Before coming to Guelph, Lipton directed the *Media Ecology* program at New York University, worked as a resource and site advisor for New York City public school teachers, taught at the *Harvey Milk High School* in New York City, held the Mellon Fellowship in Visual Literacy at Vassar College and was the recipient of a Ford Foundation grant. He also spent time as Education Director at the non-profit organization *Children's Media Project* developing health-promotion media literacy workshops. His educational materials can be found on his website http://www.marklipton.ca; follow him on Twitter @marklipton.

Elizabeth Losh is the author of *Virtualpolitik: An Electronic History of Government Media-Making in a Time of War, Scandal, Disaster, Miscommunication, and Mistakes* (MIT Press, 2009). She is the Director of the Culture, Art, and Technology program at Sixth College at UC San Diego. Before coming to UCSD, she was the Writing Director of the Humanities Core Course at UC Irvine for many years. She writes about institutions as digital content-creators, the discourses of the "virtual state," the media literacy of policy makers and authority figures, and the rhetoric surrounding regulatory attempts to limit everyday digital practices. She has published articles about instructional technology, the digital humanities, multimodal composition, state-funded distance learning, national digital libraries, government websites and YouTube channels, videogames for the military and emergency first-responders, political blogging, and congressional hearings on the Internet. With Jonathan Alexander she is the author of the forthcoming sequential art textbook from Bedford/St. Martin's *Understanding Rhetoric: A Graphic Guide to Composition.*

Martin Lucas is a filmmaker, educator and media activist. His work explores the links of the technological with the language of control and forms of resistance. His career as a documentary filmmaker include works looking at urban crisis and the militarization of culture. As a member of Paper Tiger Television Collective, Martin was one of the producers of *The Gulf Crisis Television Project* in 1991. From 2005–07, Martin was a fellow at the Center for Social Media at American University (http://www.centerforsocialmedia.org). He has also taught in a variety of community contexts, and organized and sponsored a variety of workshops and conferences focused on communications technology, social change and expanded notions of documentary. Martin teaches documentary and new media production in the Film and Media Studies Department at Hunter College, City University of New York, where he is the director of the Integrated Media Arts MFA Program and a senior fellow at the Center for Health Media Policy. His website is http://www.martinlucas.net.

Michael Mandiberg's recent work has explored the aesthetics of failed banks, the theory and practice of online collaboration, new media pedagogy, and web browser plug-ins that highlight environmental impacts. This work bridges the often separate domains of art making, design, programming, teaching, and scholarship. His creative work has been commissioned by Turbulence.org and Rhizome.org, and exhibited at The New Museum for Contemporary Art, Ars Electronica, and Transmediale. He is the co-author (with xtine burrough) of the design primer Digital Foundations: an Intro to Media Design (http://digital-foundations.net) that teaches Bauhaus visual principles through design software, and a co-author of Collaborative Futures (http://www.collaborative-futures.org), a collaboratively written book about collaboration. A former Senior Fellow at Eyebeam Center for Art + Technology, he is an Assistant Professor of Media Culture at the College of Staten Island/CUNY. You can find him online at http://mandiberg.com, at @Mandiberg, or riding his bicycle around Brooklyn. His syllabi live on http://oomm.org.



Shannon Mattern is an Assistant Professor of Media Studies and Film at The New School in New York and was, from 2006 to 2009, director of the Masters in Media Studies program. Her research and teaching focus on relationships among media, architectural, and urban space. Her book, *The New Downtown Library,* was supported by the Graham and Mellon foundations and published by the University of Minnesota Press in 2007. She has also published in several edited volumes and in journals including *Public Culture,* the *Journal of Architectural Education, The Senses and Society,* and the *International Journal of Communication*. Her classes, which regularly involve the use of digital media, have resulted in the creation of exhibitions and installations and, in Fall 2010, thanks to the support of an Innovations in Education grant from The New School, a prototype of an open-source mapping tool for scholarly urban research. See also http://www.wordsinspace.net and http://mediacommons.futureofthebook.org/users/shannonmattern.

Jeffrey W. McClurken is Associate Professor and Chair of History and American Studies at the University of Mary Washington. His research areas include the history of veterans, families, gender, the Pinkertons, mental institutions, the 19th-Century American South, and the digital humanities. He teaches classes on US History topics including technology and culture, digital history, women's history, history & film, and TED.com. His interest in the digital humanities began while programming his Commodore 64 using a cassette tape drive in the 1980s, but took off when he entered census data and HTML for the *Valley of the Shadow* project (http://valley.lib.virginia.edu) in the mid-1990s. He has been involved in digital pedagogy since making his students hand code HTML in the early 2000s. He blogs at Techist (http://mcclurken.blogspot.com), tweets from @jmcclurken (http://twitter.com/jmcclurken), and is a contributing author (http://chronicle.com/blogAuthor/ProfHacker/27/Jeffrey-W-McClurken/238) for the ProfHacker group blog (http://chronicle.com/blogs/profhacker) at the *Chronicle of Higher Education*. Links to his scholarship, classes, and presentations can be found at http://mcclurken.org.

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Facebook-Philosophy-Whats-Popular-Culture/dp/0812696751) (Open Court, 2010) and *iPod and Philosophy* (http://www.amazon.com/iPod-Philosophy-Popular-Culture/dp/0812696514) (Open Court, 2008), and authored numerous book chapters and journal articles, including "A Provisional Phenomenology of the Audiobook" (*Audiobooks, Literature, and Sound Studies,* Rubery ed., Routledge, forthcoming 2011—http://www.routledge.com/books/details/9780415883528), "On the Wrongfulness of Strong Copyright in E-Business" (*Ethical Issues in E-Business,* Palmer ed., IGI Global, 2010—http://www.igi-global.com/bookstore/TitleDetails.aspx?TitleId=37328), and "Revolutionary Industry and Digital Colonialism" (*Fast Capitalism* v.4.1—http://www.uta.edu/huma/agger/fastcapitalism/4_1/home.html). He Tweets irregularly @dwittkower (http://twitter.com/dwittkower).

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